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ABSTRACT

This report describes U.S. K-12 teachers' satisfaction with teaching as a career and identifies some workplace-related factors associated with satisfaction. Factors examined include school and workplace characteristics, teacher background, salary, and other benefits. Results are presented in three sections. The first section describes satisfaction levels of teachers with different background characteristics, teaching in different types of schools and school systems, with different perceptions of workplace conditions, and receiving different levels of compensation. The second section contrasts characteristics of most and least satisfied teachers. Using multivariate analysis, the third section describes the strength of association between teacher satisfaction and those workplace conditions open to policy changes after accounting for other relevant teacher and school characteristics. Findings indicate that working conditions related to satisfaction are administrative support and leadership, student behavior, and school atmosphere. Compensation is only modestly related to teacher satisfaction. Four appendixes provide: Standard Error Tables, Supplemental Regression Table, Technical Notes, and a list of Schools and Staffing Survey (SASS) Data Products. (Contains 17 tables, 5 figures and 17 references). (LH)

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Statistical Analysis Report August 1997

Job Satisfaction Among America's Teachers

Effects of Workplace Conditions, Background Characteristics, and Teacher Compensation

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Statistical Analysis Report August 1997

Job Satisfaction Among America's Teachers

Effects of Workplace Conditions, Background Characteristics, and Teacher Compensation

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Highlights

- Administrative support and leadership, student behavior and school atmosphere, and teacher autonomy are working conditions associated with teacher satisfaction; the more favorable the working conditions were, the higher the satisfaction scores were.

- Private school teachers tend to be more satisfied than public school teachers and elementary school teachers tend to be more satisfied than secondary school teachers, but this relationship is not nearly as strong as the finding that teachers in any school setting who receive a great deal of parental support are more satisfied than teachers who do not.

- In public schools, younger and less experienced teachers have higher levels of satisfaction than older and more experienced teachers. In private schools, the relationship is bipolar—the very youngest and very oldest teachers had the highest levels of satisfaction as did the least and most experienced teachers.

- Although certain background variables, such as teacher's age and years of experience, are related to teacher satisfaction, they are not nearly as significant in explaining the different levels of satisfaction as are the workplace condition factors, such as administrative support, parental involvement, and teacher control over classroom procedures.

- Teachers with greater autonomy show higher levels of satisfaction than teachers who feel they have less autonomy. Administrative support, student behavior, and feelings of control were consistently shown to be associated with teacher job satisfaction.

- Teacher satisfaction showed a weak relationship with salary and benefits.

- Workplace conditions had a positive relationship with a teacher's job satisfaction regardless of whether a teacher is in a public or private school, or an elementary or secondary school, and regardless of the teacher's background characteristics or the school demographics.

- The most satisfied secondary school teachers felt they had more parental support and were less likely to have been threatened by students than the least satisfied secondary school teachers.

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Introduction

A high–quality teaching staff is the cornerstone of a successful educational system. Daily interaction between teachers and students is at the center of the educational process; attracting and retaining high quality teachers is, thus, a primary necessity for education in the United States. One step in developing a high quality faculty is understanding the factors associated with teaching quality and retention. One of these factors is job satisfaction, which has been studied widely by organizational researchers and has been linked to organizational commitment[1] as well as to organizational performance[2] (Ostroff, 1992 and Mathieu, 1991). Oftentimes it is not merely satisfaction with the job but with the career in general that is important. Satisfaction with teaching as a career is an important policy issue since it is associated with teacher effectiveness which ultimately affects student achievement (Ashton and Webb, 1986; Carnegie Task Force on Teaching, 1986). Because faculty are both the largest cost and the largest human capital resource of a school system, understanding factors that contribute to teacher satisfaction (or dissatisfaction) is essential to improving the information base needed to support a successful educational system.

This report describes the satisfaction with teaching as a career of the nation's kindergarten through 12th grade teaching workforce and identifies some work-related factors associated with satisfaction. Factors examined here include characteristics of the school, as well as the workplace, the teacher's background, salary, and other benefits.

By focusing on workplace conditions, this report expands on the 1993 report *America's Teachers: Profile of a Profession* (Choy et al., 1993) that uncovered several factors related to dissatisfaction and turnover, such as class size, school safety, teacher autonomy, and isolation of the classroom. The data used to explore these factors come from the 1993-94 Schools and Staffing Survey (SASS), produced by the National Center for Education Statistics (NCES).

In addition to a general description of job satisfaction among the nation's K–12 teachers, the focus of this report is on identifying workplace conditions and compensation factors that may be manipulated by policy to influence satisfaction with teaching as a career. Satisfaction with teaching as a long-term career versus more ephemeral satisfaction with a particular job during a career is a broader and, in some ways, more important consideration for developing the nation's teaching corps. Workplace conditions that affect not just current job satisfaction, but satisfaction with teaching as a career, need to be identified and examined by policy makers. If these conditions can be modified through changes in policy, then it might be possible to increase the satisfaction levels of the teaching force. For example, the analysis below shows that teacher autonomy is positively associated with career satisfaction; indicating a policy area that might be manipulated to increase teacher satisfaction. To the degree that schools and school districts may be able to increase teachers' control over their classrooms and school-wide rules and regulations or hiring practices, they may be able to increase long-term satisfaction among teachers. Several dozen such workplace and compensation factors are examined as to each one's relationship with teacher job satisfaction.

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[1] Organizational commitment, in the context of job satisfaction, is the relative strength of a worker's identification and involvement in the organization in which he or she works.

[2] Ostroff studied five areas of organizational performance related to schools, including academic achievement, student behavior, student satisfaction, teacher turnover, and administrative performance.

The results are presented in three sections. The first describes the level of satisfaction with teaching as a career among all kindergarten through 12th grade teachers, reported by different teacher, school, and community, characteristics, such as satisfaction levels of teachers from small schools compared to medium and large schools. Additionally, the first section compares satisfaction levels among teachers across workplace conditions, such as administrative support and student apathy towards school. The second section contrasts characteristics of the most and the least satisfied teachers. These first two sections describe teachers from public elementary schools, public secondary schools, private elementary schools, and private secondary schools separately. Using multivariate analyses, the third section presents the comparison of the degree to which policy-relevant factors are related to satisfaction with teaching as a career, controlling for those factors that are less likely to be changed by policy, such as community, school, and teacher background characteristics.

Policy Context

Job satisfaction is an affective reaction to an individual's work situation. It can be defined as an overall feeling about one's job or career or in terms of specific facets of the job or career (e.g., compensation, autonomy, coworkers) and it can be related to specific outcomes, such as productivity (Rice, Gentile, and McFarlin, 1991). With teachers, satisfaction with their career may have strong implications for student learning. Specifically, a teacher's satisfaction with his or her career may influence the quality and stability of instruction given to students. Some researchers argue that teachers who do not feel supported in their work may be less motivated to do their best work in the classroom (Ostroff, 1992; and Ashton and Webb, 1986). In addition, highly satisfied teachers are less likely to change schools or to leave the teaching profession altogether than those who are dissatisfied with many areas of their work life (Choy et al., 1993). These actions disrupt the school environment and result in the shift of valuable educational resources away from actual instruction towards costly staff replacement efforts.

What factors are associated with teacher satisfaction?

As is the case with all white-collar positions, both intrinsic and extrinsic factors affect a teacher's satisfaction.

Intrinsic factors. For teachers, intrinsic satisfaction can come from classroom activities. Daily interactions with students inform teachers' feelings about whether or not students have learned something as a result of their teaching. Student characteristics and perceptions of teacher control over the classroom environment also are intrinsic factors affecting teacher satisfaction (Lee, Dedrick, and Smith, 1991). Several studies have found that these factors are related to both attrition and satisfaction in teaching, as well as other professions (Boe and Gilford., 1992; Lee et al., 1991). Advocates of professional autonomy claim that conferring professional autonomy "...will enhance the attractiveness of the [teaching] profession as a career choice and will improve the quality of classroom teaching and practice." (Boe and Gilford, 1992, p. 36)

Intrinsic factors may play a role in motivating individuals to enter the teaching profession, since most teachers enter the profession because they enjoy teaching and want to work with young people. Very few teachers enter the profession because of external rewards such as salary, benefits, or prestige (Choy, et al., 1993, p. 126). However, while intrinsic forces may motivate people to become teachers, extrinsic conditions can influence their satisfaction in this position and their desire to remain in teaching throughout their career.

Extrinsic factors. A variety of extrinsic factors have been associated with teacher satisfaction, including salary, perceived support from administrators, school safety, and availability of school resources, among others (Bobbitt et al., 1994; Choy et al., 1993). These and other characteristics of a teacher's work environment have been targeted by public commissions, researchers, and educators who claim that "poor working conditions have demoralized the teaching profession" (Choy, et al., 1993, p.137). These groups (i.e., public commissions, researchers, and educators) believe that when teachers perceive a lack of support for their work, they are not motivated to do their best in the classroom, and that when teachers are not satisfied with their working conditions, they are more likely to change schools or to leave the profession altogether (ibid).

What outcomes are associated with teacher satisfaction?

Teacher satisfaction has been linked to teacher attrition, as have some factors associated with satisfaction (e.g., teacher control, student behavior). According to a recent NCES report, approximately 5 percent of public school teachers and 12 percent of private school teachers, on average, left the teaching field after both the 1987-88 and the 1990-91 school years (Bobbitt et al., 1994). While many left the profession for family reasons

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or to retire, 20 percent of public school leavers and 28 percent of private school leavers left because they wanted to pursue other career opportunities, they were dissatisfied with the profession, or because they desired better salaries or benefits Of the teachers who reported being dissatisfied with teaching as a career, the majority specified concerns with inadequate support from the administration and poor student motivation to learn. However, the report cited here examines the satisfaction of teachers who are currently in the teaching workforce and compares it to those who just left the teaching profession, as opposed to predicting which of the teachers currently in the teaching corps will leave.

Other recent research links turnover to school quality and cohesion as well as to school sector and size (Ingersoll and Alsalam, 1996 and Lee et al., 1991). Salary is only slightly related and benefits are unrelated to staff turnover. Furthermore, among teachers with similar levels of salary and similar benefits, other workplace conditions are found to be related to turnover, including the degree of faculty influence over school policy, control over classroom decisions, and the degree of student misbehavior (Ingersoll et al., 1995).

While the slight relationship between salary and turnover may seem counterintuitive, a similar finding exists between salary and both teacher satisfaction and commitment. Specifically, researchers have found only a limited impact of such incentives and rewards as high salaries and merit increases on teacher commitment and satisfaction. In fact, low salaries can be associated with increased organizational commitment because workers with such salaries may develop other rationales for remaining at their job (Firestone, 1990).

It is important to keep in mind that increasing teacher satisfaction will not eliminate attrition, as some attrition is natural. However, it is important to study teachers who left the profession because they were dissatisfied with some aspect of the job. This type of analysis might help identify ways to alter negative types of teacher turnover.

Do specific teacher and school characteristics relate to their satisfaction?

Although organizational factors related to teacher satisfaction are often the focus of research efforts, several teacher and school characteristics are also related to satisfaction. For instance, research examining the satisfaction of public and private school teachers indicates that teaching in a private school is associated with greater job satisfaction on average. Similarly, elementary school teachers tend to be more likely to be highly satisfied with their working conditions than secondary school teachers (Choy et al., 1993).

Data

This report analyzes NCES 1993-94 Schools and Staffing Survey (SASS), a large and comprehensive dataset on elementary and secondary schools, teachers, and principals in both the public and private sectors in the United States. SASS includes a wide range of information on the characteristics, work, career plans, and attitudes of administrators and faculty, and the characteristics of schools and districts across the country. (See technical appendix C for details.)

SASS uses a complex and random sample of schools stratified by state, sector, and school level that provides estimates representative of the nation and each affiliation for private schools and of the nation and each state for public schools. SASS includes separate questionnaires for private and public schools, school districts (public only), school administrators, and teachers.

This report focuses on both elementary school teachers and secondary school teachers and on both public and private school teachers. Elementary school teachers are defined as those that teach in a school that has grade six or lower and no grade higher than eighth grade; secondary school teachers are defined as those in schools having grade nine or higher and no grade lower than seventh grade. In addition, the analysis in this report was restricted to full-time, regular classroom teachers. This analysis consisted of three parts. First, an index of satisfaction with teaching as a career was created using several items from the teacher questionnaire. Second, the index was used for descriptive analyses of teacher satisfaction by teacher, school, and classroom characteristics. Specifically, the report will focus on workplace conditions, such as teacher autonomy, school safety, and parental and administrative support. Third, a multivariate analysis of teacher satisfaction was conducted in order to demonstrate which workplace conditions and teacher compensation factors are most strongly associated with teacher satisfaction after controlling for teacher background characteristics.

The satisfaction index was created using Item Response Theory (IRT)[1], as this process allowed us to see how strongly each of the questions correlated with teacher satisfaction and how the response alternatives differed from each other.

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[1] See the technical appendix for a full explanation of the IRT analysis.

The satisfaction index was determined from three questions from the teacher questionnaire:

- How long do you plan to remain in teaching?
- If you could go back to your college days would you choose teaching as a career again?
- To what degree to you agree or disagree with the statement "I sometimes feel it is a waste of my time to try to do my best as a teacher"?

The first question concerning plans to remain in teaching has five possible responses:

1. As long as I am able
2. Until I am eligible for retirement
3. I'll continue teaching unless something better comes along
4. I definitely plan to leave teaching
5. Undecided at this time

The fifth response, "undecided," was coded as missing in this analysis as it did not fit the ordered response assumption[4].

The second question about whether teachers would pick teaching as a career if they could do it all over again had five possible responses:

1. Certainly would
2. Probably would
3. Chances about even
4. Probably would not
5. Certainly would not

The third question about teachers' feelings about wasting their time trying to do their best was coded on a four point Likert scale:

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

---

[4] Including it as an ordered response did not change the results dramatically, but it was decided that the response should be coded as missing to avoid any misinterpretation.

A fourth item, "I am satisfied with my teaching salary," was included in the initial analyses but was later dropped because it was found to be unrelated to the other three items and a poor predictor of teacher satisfaction for all teachers.

An IRT analysis was conducted using the remaining three items to create a satisfaction score for each teacher. hese scores were used to group teachers' satisfaction as "high" "moderate" and "low."

The teachers were then divided into three groups. Approximately 34 percent of the teachers within the group identified as having a low level of satisfaction indicated that they are not sure that they would choose teaching as a career again. A majority of this group also agreed that they felt it was a waste of their time to try to do their best as a teacher. n the other end of the scale, approximately 32 percent of the teachers indicated that they certainly would become a teacher again if given the opportunity. These teachers also planned on remaining in teaching at least until retirement. his group was identified as having a high level of satisfaction. The 35 percent of teachers who fell between these other two groups were identified as having a moderate level of satisfaction. The first section of this report examines the percent of teachers with varying characteristics who fall into each of the three levels of satisfaction.

It is worth noting that over 20 percent of teachers gave the most positive responses for all of the questions, and almost 9 percent gave extremely negative responses. These extreme groups are examined in the second section of this report to determine what, if any, outstanding characteristics define them. he primary difference between section one and section two, besides the difference in the population, is that in the first section, teacher satisfaction is the dependent variable with the analysis seeking to determine whether teachers with different characteristics are more likely to express different levels of satisfaction. In the second section, however, teacher satisfaction is the independent variable in the analysis which attempts to describe teachers with very high and very low levels of satisfaction. In neither case should readers draw causal inferences from the associations.

In each of the first two sections, data from teachers were analyzed based on four clusters of variables: school characteristics, teacher background characteristics, workplace conditions, and teacher compensation. The specific variables within each cluster are as follows:

- School characteristics—School sector, school level, community type, school size, class size, percent of students who are minority, and percent of students eligible for free or reduced price lunches;
- Teacher background characteristics—age, sex, race/ethnicity, years teaching experience, education, background, grade level taught, and main teaching field;
- Workplace conditions—administrative support, student behavior, decision making roles, parental support, amount of paperwork and routine duties,

availability of resources, communication with principal, cooperation among the staff, staff recognition, control in classroom, influence over school policy, student absenteeism, student apathy, and violence; and

- Teacher compensation—salaries, benefits, and other opportunities within the school for income (such as coaching or mentoring), and outside employment

Although the meaning of most of these variables is obvious, teacher perceptions may need further explanation. From a list of 25 statements to which teachers indicated the degree to which they either agreed or disagreed on a four point Likert scale, nine items were chosen.[5] Three of the items—administrative support, availability of resources, and cooperation among the staff—were chosen because prior research indicated that each is associated with teacher satisfaction. The other six were selected because there was great variation in how teachers responded to them. In other words, similar percentages of teachers agreed with the statement as disagreed, allowing for a high degree of discrimination. The last five variables—control in classroom, influence over school policy, student absenteeism, student apathy, and violence—were selected because they are mentioned as factors for teachers leaving the profession in the literature mentioned above. The measures for control in classroom and influence over school policy were created from a subset of questions regarding these issues.[6] For the last items, teachers were asked to what extent student absenteeism and student apathy were problems, and how often they have encountered a violent situation.

Cross tabulations were run on all of these characteristics to describe satisfaction levels of teachers with varying characteristics and to provide a profile of teachers with very high and very low levels of satisfaction. Chi–square tests and Pearson correlations were run on the first set of analysis to determine the relationship between the various characteristics and satisfaction, and t-tests with Bonferroni adjustments were used to test specific relationships. T–tests with Bonferroni adjustments were used in the second section to determine if there were any differences between the most and least satisfied teachers. These tests first show how teachers with different background characteristics, working in different types of schools, and with different perceptions of workplace conditions vary in terms of satisfaction. They also show how highly satisfied teachers differ from teachers with low levels of satisfaction.

Finally, the effects of workplace conditions were examined while holding constant teacher background and school characteristics. OLS multiple regressions were used to estimate independent contributions of different factors to variation in teacher satisfaction. The OLS estimates were compared across a series of models. First, a background model of data about the schools and teachers was established. The background model consists of just those variables which are extremely difficult to influence by policy. These variables include some school characteristics (i.e., control of school, school level, community type, school size, percent minority, and percent free lunch) and some teacher variables (i.e., sex, race/ethnicity, age, years teaching experience, grade level taught, and main teacher field). While the race, sex, or age composition of the teaching force might be altered by equal employment opportunity initiatives or changes in retirement age, these changes, and others in the background data, are at best likely to result in very gradual changes at the national level. By controlling for these variables, it can be determined which policy relevant variables make a difference across all school types and all teachers. Each model therefore includes the background variables in order to determine which policy relevant variables influence teacher satisfaction after controlling for variables that cannot be influenced by policy.

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[5] The four point Likert scale includes the following response categories: Strongly agree, somewhat agree, somewhat disagree, and strongly disagree. See technical appendix for a list of all variables analyzed.

[6] See technical appendix for an explanation of exactly how the measures were created.

Estimates of this report are based on samples, and hence, are subject to sampling errors. Standard errors indicating the accuracy of selected estimates are included in appendix B. All comparisons and differences discussed in the report were tested for statistical significance at the .05 level and only reported if they met this criterion for significance.

Results

Results are presented in three sections, summarizing the findings of the relationship between workplace conditions and teacher satisfaction.

Section 1: Distribution of teachers across levels of satisfaction

For the first analysis, teachers were divided into three levels of satisfaction based on their score on a continuum of satisfaction with teaching as a career.[7] Approximately 34 percent of the teachers gave responses (3, 4, or 5), indicating that they are not sure that they would choose teaching as a career again. A majority of this group also agreed that they felt it was a waste of their time to try to do their best as a teacher. This group was identified as having a low level of satisfaction. On the other end of the scale, approximately 32 percent of the teachers indicated that they certainly would become a teacher again if given the opportunity. These teachers also planned on remaining in teaching at least until retirement. This group was identified as having a high level of satisfaction. The 35 percent of teachers who fell between these other two groups were identified as having a moderate level of satisfaction.

The purpose of this section is to determine the satisfaction levels of teachers with different background characteristics, teaching in different schools, with different perceptions of workplace conditions, and receiving different levels of compensation. The percent of teachers with varying characteristics who fall into each of the three levels of satisfaction are examined along with differences across subgroups of teachers and among various school and community types and differences between teachers who report different work place conditions. Overall, although there are differences in satisfaction between elementary and secondary teachers and between public and private school teachers, most school, classroom, and teacher background variables are only weakly associated with satisfaction with teaching as a career. Instead, workplace conditions relate more strongly with satisfaction.

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[7] The definitions of high, moderate, and low satisfaction were developed so that the total population of teachers is fairly evenly distributed between the three levels.

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Table 1 presents the percentage of all teachers who have high, moderate, and low levels of satisfaction separately by school sector and school level.[8] This distribution provides a reference point for the other distributions when the total teacher population is described in terms of the different categories.

Table 1— Percent distribution of teachers across levels of satisfaction, by school sector and school level: 1993–94

Characteristic	*Level of satisfaction* High	Moderate	Low
TOTAL	33.8	34.5	31.7
School sector			
Public	32.0	34.6	33.4
Private	47.6	34.3	18.0
School level			
Elementary	36.2	35.3	28.5
Secondary	27.8	33.7	38.5
Combined	40.1	34.6	25.3

Table reads: 32.0 percent of public school teachers had a high level of satisfaction

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94

How do levels of satisfaction differ between public and private schools and between elementary and secondary schools?

Figure 1 shows the distribution of teachers across the different levels of satisfaction for teachers of different sectors and school levels. Private schools have a higher concentration of teachers with high levels of satisfaction, while public school teachers are distributed fairly evenly across the three levels of satisfaction. The public school finding is mostly an artifact of the way the teachers were divided equally into the three categories. Because the public school teachers comprise over 80 percent of the total teacher population, the categorization of satisfaction levels more directly affects public school than private school teachers. Elementary school teachers and teachers teaching in combined schools tend to be categorized as having high or moderate levels of satisfaction, while secondary school teachers fall more heavily in the moderate and low satisfaction categories. In summary, both table 1 and figure 1 indicate that private school teachers are more satisfied than public school teachers, and elementary school teachers are more satisfied than secondary school teachers.[9] Because of the differences

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[8] All teachers have been placed into one of the three categories, so in Tables 1-8, each row will add up to 100 percent.

[9] An analysis of the mean satisfaction scores of public and private and of elementary and secondary school teachers also shows significant differences between the groups.

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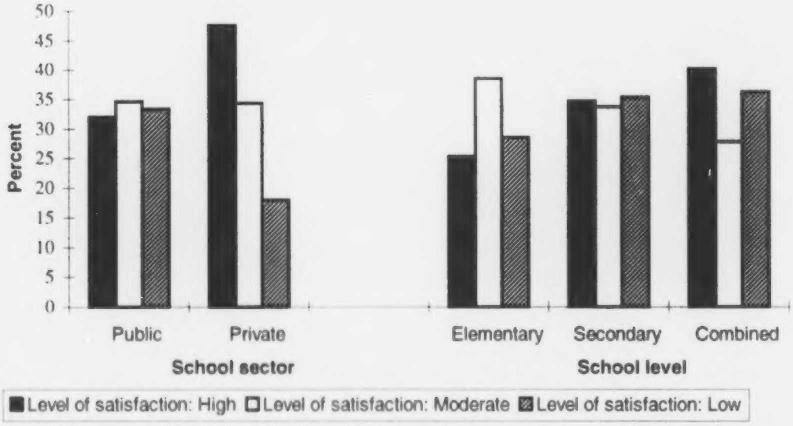
found between public and private school teachers and between elementary and secondary school teachers, the remaining tables report results separately by sector and level.

Figure 1— Percent distribution of teachers across levels of satisfaction, by school sector and school level: 1993–94



SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

How do satisfaction levels differ for teachers teaching in schools in different communities, with different school sizes, and with different student populations?

Different variables are associated with teacher satisfaction in each of the four teacher populations. Table 2 presents the level of satisfaction for public school teachers across different communities, school types and student populations. Table 3 presents the same for private school teachers. Many factors show no relationship at all with teacher satisfaction, while other variables are only important to certain subpopulations of teachers; however, the relationship between background variables and teacher satisfaction tends to be weak, even when significant.[10]

For public elementary school teachers, different distributions of satisfaction are shown for teachers teaching in schools with different community types, percent of minority students, and percent of students on free or reduced price lunch plans. As seen in figure 2, schools in urban fringe areas have a higher proportion of highly satisfied teachers than schools in central cities. Central city teachers are evenly distributed between the different levels of satisfaction, while small town and rural teachers are primarily divided between the high and moderate categories with less than 30 percent of the teachers falling into the low satisfaction category, indicating that there are more satisfied teachers in urban fringe, small town, and rural areas than in central cities.

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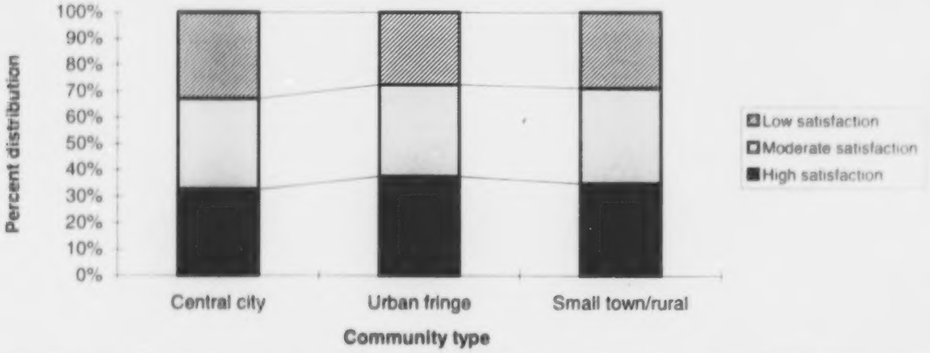
[10] For example, the percent of minority students enrolled is associated with satisfaction at both levels of public school; however, the correlation between percent minority enrollment and satisfaction is only -.06 in elementary schools and -.04 in secondary schools.

Figure 2— Percent distribution of public elementary school teachers across levels of satisfaction, by community type: 1993–94



SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

Student characteristics are also moderately associated with teacher satisfaction. Almost three-fourths of public elementary teachers who teach in low minority schools fall into either the high or moderate satisfaction categories, while public elementary teachers in high minority schools tend to be distributed more evenly across the three levels of satisfaction with about two-thirds falling into either the high or moderate satisfaction categories. Also, public elementary teachers in schools with smaller percentages of students on the free or reduced price lunch plan are more likely to be categorized as highly satisfied than those with higher percentages of students on the plan. Finally, either similar or higher percentages of kindergarten teachers are classified as having high levels of satisfaction compared to the other grade levels. A large proportion of first through fourth grade teachers also have high levels of satisfaction; relatively more first through fourth grade teachers are in the high level of satisfaction than fifth through eighth grade teachers (see table 2).

Public secondary school teachers do not differ across the various school and classroom characteristics as much as their elementary counterparts do. Overall, secondary school teachers are less satisfied than elementary school teachers, and this does not change with different school characteristics. The one exception is the percentage of students receiving free and reduced price lunches. Teachers in schools with less than five percent of the student population on the free lunch plan are slightly more likely to have high levels of satisfaction, while teachers in schools with 20 percent or more students on the free lunch plan are more likely to have low levels of satisfaction.

In private schools, no school or classroom characteristics are associated with satisfaction at either the elementary or secondary level. The characteristics associated with satisfaction for public school elementary teachers are not as strong for private school teachers, although this lack of relationship could be due to smaller sample sizes in the private school data (see table 3).

Table 2— Percent distribution of public school teachers across levels of satisfaction, by school level and selected school and classroom characteristics: 1993–94

School and classroom characteristics	*Elementary school teachers* High satisfaction	Moderate satisfaction	Low satisfaction	*Secondary school teachers* High satisfaction	Moderate satisfaction	Low satisfaction
TOTAL	34.9	35.4	29.7	26.7	33.7	39.6
Community type						
Central city	32.4	34.7	32.9	25.6	33.0	41.3
Urban fringe	37.4	35.1	27.6	27.9	34.9	37.2
Small town/rural	34.8	36.2	29.0	26.4	33.3	40.3
School size						
Less than 150	34.6	41.5	23.9	29.2	33.6	37.3
150–499	37.0	35.2	27.8	26.8	32.9	40.3
500–749	35.2	35.2	29.5	26.5	32.5	41.0
750 or larger	30.6	35.3	34.0	26.6	34.3	39.2
Percent of students who are minorities						
Less than 20 percent	37.3	35.7	27.0	27.2	34.3	38.5
20 percent or more	32.5	35.1	32.4	26.1	33.1	40.8
Percent of students receiving free/reduced price lunch						
Less than 5 percent	39.1	34.6	26.3	28.8	34.8	36.5
5–19 percent	36.0	35.9	28.2	26.4	34.8	38.8
20 percent or more	33.8	35.4	30.9	25.9	32.2	41.9
Grade level taught						
Kindergarten	42.5	36.8	20.7	—	—	—
Grades 1–4	37.1	35.4	27.5	—	—	—
Grades 5–8	30.9	34.5	34.6	26.9	34.1	39.0
Grades 9–12	—	—	—	26.3	34.0	39.7
Multiple grade levels	34.9	36.1	29.0	28.1	32.5	39.4
Main teaching field						
General	37.3	35.2	27.5	42.1	28.5	29.4
English/reading/language arts	34.2	34.2	31.6	25.2	34.0	40.8
Arithmetic/mathematics	27.2	36.1	36.7	25.4	33.8	40.8
Social studies/history	25.7	34.6	39.7	26.9	34.1	39.0
Science	31.0	36.4	32.6	22.4	32.7	44.9
Foreign language	23.4	41.2	35.4	25.9	32.6	41.5
Art or music	29.9	33.3	36.8	29.3	34.9	35.8
Vocational/technical	24.0	38.2	37.8	24.7	33.5	41.7
Special education	32.2	37.8	29.9	31.4	34.4	34.2
Bilingual or ESL education	37.6	40.6	21.7	30.0	27.1	42.6
Other	34.6	33.0	32.4	29.8	33.9	36.2

—Not applicable.

Table reads: 32.4 percent of public elementary school teachers in central cities have a high level of satisfaction.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

Table 3— Percent distribution of private school teachers across levels of satisfaction, by school level and selected school and classroom characteristics: 1993–94

School and classroom characteristics	*Elementary school teachers* High satisfaction	 Moderate satisfaction	 Low satisfaction	*Secondary school teachers* High satisfaction	 Moderate satisfaction	 Low satisfaction
TOTAL	49.7	34.4	15.9	44.4	32.9	22.7
Community type						
Central city	50.1	33.7	16.3	46.5	29.0	24.5
Urban fringe	50.3	35.8	13.9	45.0	34.0	20.9
Small town/rural	47.5	33.0	19.5	37.3	41.2	21.5
School size						
Less than 150	49.3	36.0	14.7	43.9	29.1	27.0
150–499	49.3	33.7	17.0	43.7	33.3	23.0
500–749	53.2	36.1	10.7	47.9	32.6	19.5
750 or larger	51.1	30.0	19.0	43.3	34.1	22.6
Percent of students who are minorities						
Less than 20 percent	50.3	34.2	15.5	43.4	34.4	22.2
20 percent or more	48.2	34.9	16.9	46.3	30.2	23.5
Percent of students receiving free/ reduced price lunch						
Less than 5 percent	50.0	34.0	16.0	45.3	33.0	21.7
5–19 percent	49.5	35.7	14.9	31.6	37.8	30.6
20 percent or more	47.7	35.1	17.2	55.4	22.5	22.1
Grade level taught						
Kindergarten	53.6	37.6	8.9	—	—	—
Grades 1–4	52.2	34.7	13.1	—	—	—
Grades 5–8	47.1	32.6	20.4	0.0	41.0	0.0
Grades 9–12	—	—	—	44.2	33.7	22.1
Multiple grade levels	46.9	34.5	18.5	41.1	31.4	27.5
Main teaching field						
General	50.5	35.6	13.9	—	—	—
English/reading/language arts	48.2	33.6	18.1	42.9	31.4	25.7
Arithmetic/mathematics	53.5	29.8	16.37	44.4	32.2	23.4
Social studies/history	48.9	27.4	23.7	35.0	47.9	17.1
Science	37.5	37.6	24.9	40.4	36.9	22.8
Foreign language	0.0	0.0	0.0	36.5	35.2	28.3
Art or music	35.8	34.2	30.0	49.0	25.4	25.7
Vocational/technical	0.0	0.0	0.0	46.6	32.8	20.6
Special education	0.0	0.0	0.0	65.9	9.6	24.5
Bilingual or ESL education	0.0	0.0	0.0	0.0	0.0	0.0
Other	49.4	28.7	21.9	50.4	30.4	19.2

—Not applicable.

Table reads: 50.1 percent of private elementary school teachers in central cities have a high level of satisfaction.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

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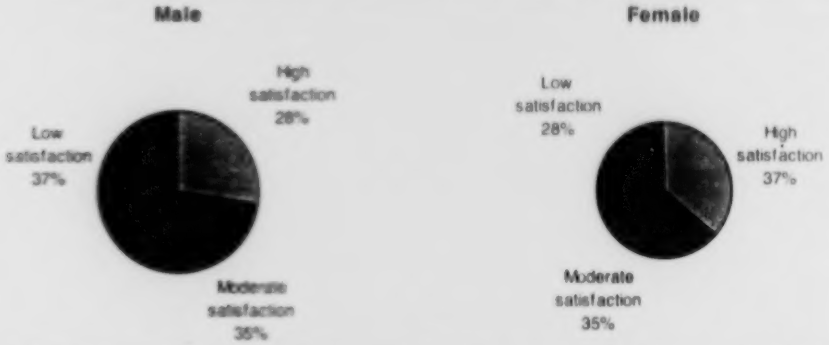
How does satisfaction differ for public school teachers with different backgrounds and for those teaching in different types of classrooms?

As table 4 shows, satisfaction with teaching as a career varies across some teacher characteristics of public school teachers such as gender, race, age, and experience. For example, as seen in figure 3, in both elementary and secondary schools, there are relatively more female than male teachers in the high satisfaction category and relatively more male than female teachers in the low satisfaction categories.

Figure 3— Percent distribution of public elementary school teachers across levels of satisfaction, by sex: 1993–94

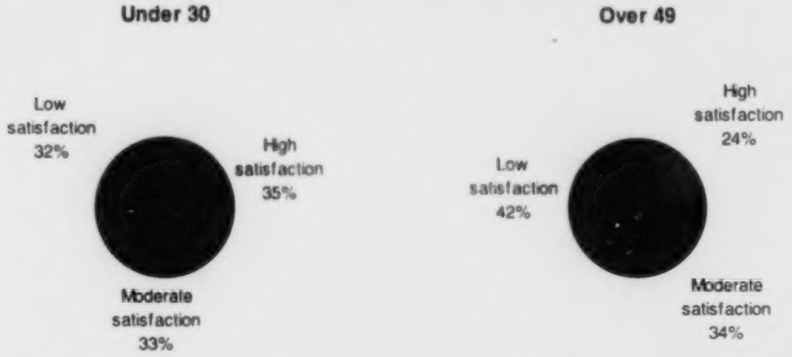


SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey: 1993–94, Teacher Questionnaire.

In public elementary schools, teachers report fairly similar levels of satisfaction, although Hispanic teachers tend to cluster a little more towards the high levels of satisfaction, while Native American teachers tend to cluster a little more towards the low satisfaction category. At the secondary level, relatively more Hispanic and Asian teachers than white teachers are categorized as having high levels of satisfaction.

Age and experience are negatively related to satisfaction. Young teachers are more likely to be categorized as having high levels of satisfaction than older teachers. For example, as seen in figure 4, 35 percent of public secondary school teachers who are under 30 years old have high levels of satisfaction, while less than 25 percent of teachers 40 years old and older have high levels of satisfaction.

Figure 4— Percent distribution of public secondary school teachers across levels of satisfaction, by age: 1993–94



SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey: 1993–94, Teacher Questionnaire.

Accompanying this finding for age is a similar finding that less experienced teachers are more satisfied than more experienced teachers. Generally, public secondary teachers with 3 years of experience or less tend to have higher levels of satisfaction than those with 4 to 9 years of experience, who in turn, are more likely to have high levels of satisfaction than those with 10 to 19 years of experience. Teachers with 20 years of experience or more are less likely to be categorized as highly satisfied than any other group of teachers.[11] Although these findings are all statistically significant, many of the differences are not large. As a result, few teacher characteristics stand out as being strongly associated with satisfaction.

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[11] With the exception of elementary school teachers with 10-19 years of experience, who report similar levels of satisfaction as those with more than 20 years experience.

Table 4— Percent distribution of public school teachers across levels of satisfaction, by school level and selected teacher background characteristics: 1993–94

	Elementary school teachers			*Secondary school teachers*		
Characteristic	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
TOTAL	34.9	35.4	29.7	26.7	33.7	39.6
Sex						
Male	27.5	35.1	37.4	25.5	33.6	41.0
Female	36.3	35.4	28.3	27.8	33.9	38.3
Race/ethnicity of teacher						
White, non–Hispanic	34.5	35.8	29.7	26.1	33.9	40.0
Black, non–Hispanic	37.1	31.0	31.9	30.4	34.3	35.3
Hispanic	37.7	36.9	25.4	32.3	30.7	37.0
Native American	33.9	31.1	35.0	26.8	32.9	40.3
Asian/Pacific Islander	35.6	34.5	29.9	38.0	28.8	33.2
Age						
Under 30	44.1	32.6	23.3	35.4	33.0	31.6
30–39	37.0	35.2	27.8	30.2	34.2	35.6
40–49	32.0	35.3	32.7	25.0	33.8	41.2
Over 49	34.4	36.7	28.9	24.4	33.6	42.0
Highest degree earned						
High school diploma	—	—	—	29.2	32.0	38.8
Associate degree	—	—	—	18.4	41.8	39.8
Bachelor's degree	36.3	35.6	28.1	27.7	33.8	38.4
Master's degree	32.7	35.7	31.6	25.5	33.6	41.0
Educational specialist or professional diploma	38.8	29.2	32.0	27.2	34.8	37.9
Doctorate or first professional degree	24.1	34.4	41.5	29.9	30.3	39.8
Years of teaching experience						
3 years or less	46.7	32.9	20.4	36.1	34.9	29.0
4–9 years	37.3	34.2	28.5	30.6	33.1	36.3
10–19 years	32.8	36.0	31.2	26.1	34.0	39.9
20 years or more	31.3	36.4	32.3	22.8	33.5	43.6
Class size						
1-10	34.1	35.9	30.0	28.0	33.5	38.5
11-18	35.2	35.1	29.7	25.7	34.3	40.1
19-27	35.4	34.6	30.0	25.7	34.4	39.9
28 or more	3.8	36.7	29.5	28.2	32.7	39.1

—Too few cases for a reliable estimate

Table reads: 27.5 percent of male public elementary school teachers have high levels of education.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

Teachers with small classes were not noticeably more likely than other teachers to be highly satisfied. Likewise, there were no strong differences in satisfaction levels for teachers with different education backgrounds. Only sex, race/ethnicity, age, and teaching experience were associated with satisfaction.

Do these findings about teacher background characteristics hold true for private school teachers as well?

Although there are relatively few associations between background characteristics and satisfaction with teaching as a career among public school teachers, even fewer teacher background characteristics are associated with teacher satisfaction for private schools teachers than for public school teachers. Moreover, no background characteristic was found to be associated with private school teacher satisfaction at the secondary level. The only relationships were found at the elementary level and only between satisfaction and a teacher's age, sex, and years teaching experience.

Similar to public elementary schools, private elementary schools had a greater percentage of female teachers than male teachers classified as having high levels of satisfaction. Over half of the female private school teachers have high levels of satisfaction, compared to about 43 percent of male teachers. Unlike the findings for public schools, the race/ethnicity of the teacher was not strongly associated with teacher satisfaction.

Once again, there is a relationship between age and teacher satisfaction, but the relationship is different for private elementary school teachers than it is for public school teachers. Both the youngest and the oldest private elementary school teachers were concentrated in the high satisfaction category. The teachers least likely to be classified as highly satisfied were those who were between 40 and 49 years of age. Similarly, teachers with 3 years of experience or less and those with 20 years or more had the greatest percentage of their population in the high satisfaction category, 53 and 54 percent, respectively.

Sex, age, and years experience were the only teacher background characteristics associated with satisfaction for private school teachers, and only at the elementary level. Once again, highest degree earned and class size were not significantly associated with teacher satisfaction, nor was race/ethnicity.

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Table 5— Percent distribution of private school teachers across levels of satisfaction, by school level and selected teacher background characteristics: 1993–94

	Elementary school teachers			*Secondary school teachers*		
Characteristic	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
TOTAL	49.7	34.4	15.9	44.4	32.9	22.7
Sex						
Male	43.1	32.5	24.4	44.2	35.0	20.7
Female	50.5	34.6	14.8	44.7	30.6	24.8
Race/ethnicity of teacher						
White, non–Hispanic	49.4	34.4	16.1	44.9	32.2	22.9
Black, non–Hispanic	51.5	38.6	9.9	0.0	58.7	0.0
Hispanic	54.9	27.3	17.9	41.5	36.1	22.4
Native American	52.3	30.0	17.7	36.9	36.1	27.1
Asian/Pacific Islander	0.0	0.0	0.0	0.0	0.0	0.0
Age						
Under 30	53.6	32.5	13.9	43.6	31.1	25.2
30–39	50.8	33.3	15.9	39.4	37.6	23.0
40–49	44.0	38.0	18.1	50.1	28.1	21.8
Over 49	353.9	31.7	14.4	43.1	34.8	22.1
Highest degree earned						
High school diploma	47.2	35.9	16.9	—	—	—
Associate degree	55.9	29.0	15.1	—	—	—
Bachelor's degree	48.6	35.5	15.9	43.0	33.1	23.8
Master's degree	52.7	30.6	16.7	45.4	34.2	20.4
Educational specialist or professional diploma	54.4	39.9	5.7	40.1	22.9	37.1
Doctorate or first professional degree	—	—	—	58.6	12.5	28.9
Years of teaching experience						
3 years or less	52.6	32.7	14.6	44.0	28.9	27.1
4–9 years	50.1	32.5	17.4	42.7	35.1	22.2
10–19 years	44.6	38.3	17.1	42.5	34.5	23.0
20 years or more	53.9	32.8	13.3	48.0	32.0	20.0
Class size						
1–10	51.1	35.4	13.5	45.3	28.1	26.5
11–18	49.7	33.1	17.2	48.4	31.8	19.8
19–27	49.7	36.4	13.9	43.2	30.9	25.8
28 or more	49.5	33.6	16.9	39.8	39.8	20.3

—Too few cases for a reliable estimate

Table reads: 43.1 percent of male private elementary school teachers had a high level of satisfaction.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

How are compensation factors related to teacher satisfaction?

As seen in table 6, several measures of teacher compensation were examined, including salary, number of benefits, and supplemental income received both within and outside of the school. Overall, compensation shows little relation to satisfaction with teaching as a career. Looking first at public schools, we find that salary shows no strong association with teacher satisfaction at either the elementary or secondary level. Moreover, benefits, originally considered to be an important component of teacher satisfaction, also showed only a weak association with satisfaction. SASS listed eight different types of benefits that teachers could possibly receive. Comparing the number who receive no benefits to the number who receive medical benefits only or 1 to 3 types of benefits shows no differences in level of satisfaction. Only teachers who receive 4–6 different types of benefits have a larger percentage with high levels of satisfaction than those receiving 1 to 3 types or at least medical insurance. No teacher received all eight types of benefits or even seven of the eight types. Next, teachers who supplemented their teaching salary with work either within or outside of school were compared to those who did not. While supplementing salaries with non-school jobs made little difference in terms of level of satisfaction, those who earned additional income through school were more likely to be categorized as having high levels of satisfaction. Evidently, the ability to earn extra income through the school system is important for satisfaction, and the need to earn extra money through any means is not negatively related to satisfaction.

At the private school level, no compensation factors were found to be associated with teacher satisfaction. Overall, the salaries tended to be lower and the benefits tended to be fewer, but none of these factors were related to satisfaction with teaching.

Table 6— Percent of teachers across levels of satisfaction, by school sector, school level, and teacher compensation factors: 1993–94

	Elementary school teachers			Secondary school teachers		
Characteristic	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
			Public			
TOTAL	49.7	34.4	15.9	44.4	32.9	22.7
Salary						
Less than $25,000	37.6	35.3	27.2	27.8	32.8	39.4
$25,000–$40,000	34.0	35.1	30.9	26.1	33.0	40.9
Over $40,000	34.8	36.3	29.0	27.1	35.7	37.3
Benefits						
None	35.8	33.5	30.7	23.2	32.4	44.4
At least medical insurance	34.7	35.5	29.8	26.7	34.0	39.3
1–3 types	32.8	35.5	31.7	25.0	33.1	41.9
4–6 types	37.5	35.4	27.1	28.9	34.5	36.6
7–8 types	0.0	0.0	0.0	0.0	0.0	0.0
Supplement salary with non–school job						
Yes	33.0	32.8	34.2	26.3	33.5	40.2
No	35.4	36.0	28.6	26.9	33.8	39.3
Earn additional compensation through school						
Yes	36.5	33.9	29.7	29.5	34.3	36.2
No	34.0	36.2	29.8	22.5	33.0	44.5
			Private			
TOTAL	49.7	34.4	15.9	44.4	32.9	22.7
Salary						
Less than $25,000	49.7	34.1	16.2	44.0	32.6	23.3
$25,000–$40,000	49.3	35.7	15.0	44.4	33.2	22.5
Over $40,000	0.0	0.0	0.0	47.3	32.4	20.4
Benefits						
None	50.8	33.3	15.9	40.9	32.0	27.2
At least medical insurance	50.2	33.6	16.2	45.3	32.2	22.6
1–3 types	49.5	34.4	16.1	42.3	32.0	25.7
4–6 types	49.9	33.9	16.2	46.5	332	20.3
7–8 types	0.0	0.0	0.0	42.3	46.1	11.6
Supplement salary with non–school job						
Yes	50.2	31.6	18.1	43.9	32.8	23.3
No	49.5	35.5	15.1	44.7	32.9	22.4
Earn additional compensation through school						
Yes	48.9	35.1	16.0	44.6	33.2	22.1
No	50.0	34.1	15.9	44.2	32.4	23.4

Table reads: 37.6 percent of public elementary school teachers with salary below $25,000 had a high level of satisfaction.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

How do public school teachers' attitudes and perceptions of the workplace relate to their level of satisfaction?

Teachers attitudes and perceptions of the workplace were measured in several areas, including administrative support and leadership, student behavior and work atmosphere, and teacher control over the working environment, and then related to the three levels of satisfaction. In the public sector, every attitude with the exception of incidences of violence was related to satisfaction for both elementary and secondary school teachers (see table 7). However, the incidence of violence, both in terms of threatening injury and physical attack, was extremely low among all teachers, which would perhaps explain why it would not be significantly related to teacher satisfaction. Several factors stood out as being more strongly associated with teacher satisfaction. These include parental support, student behavior, principal interaction, staff recognition, teacher participation in school decision-making, influence over school policy, and control in the classroom.

Table 7— Percent distribution of public school teachers across levels of satisfaction, by school level and selected attitudes and perceptions of workplace conditions: 1993–94

	Elementary school teachers			*Secondary school teachers*		
Characteristic	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
TOTAL	34.9	35.4	29.7	26.7	33.7	39.6
Administration is supportive and encouraging						
Agree	37.6	36.2	26.2	29.4	35.4	35.3
Disagree	23.7	31.9	44.4	18.1	28.5	53.5
The level of student misbehavior in this school interferes with teaching						
Agree	26.5	34.0	39.6	19.6	30.8	49.6
Disagree	41.5	36.5	22.1	32.8	36.3	31.0
Teacher participate in making important school decisions						
Agree	40.2	36.2	23.6	32.4	36.1	31.5
Disagree	26.2	34.0	39.8	21.1	31.4	47.5
Parents support teachers' work						
Agree	41.5	36.4	22.1	33.4	36.2	30.4
Disagree	25.8	34.0	40.2	21.7	31.9	46.4
Routine duties and paperwork interfere with teaching						
Agree	31.4	35.8	32.8	22.9	33.3	43.8
Disagree	44.2	34.3	21.5	36.5	34.8	28.7
Necessary materials are available						
Agree	37.4	35.7	27.0	28.9	34.9	36.2
Disagree	28.1	34.6	37.3	20.7	30.6	48.7
Principal frequently discusses instructional practices with teachers						
Agree	41.1	35.3	23.6	34.0	34.6	31.4
Disagree	28.8	35.5	35.7	22.7	33.2	44.1
There is a great deal of cooperative effort among the staff						
Agree	36.9	36.1	27.0	28.6	35.2	36.2
Disagree	26.2	32.4	41.4	21.7	30.1	48.2
Staff members are recognized for a job well done						
Agree	39.3	36.3	24.4	31.6	36.2	32.2
Disagree	24.1	33.0	42.9	18.9	29.8	51.2

Table 7— Percent distribution of public school teachers across levels of satisfaction, by school level and selected attitudes and perceptions of workplace conditions: 1993–94 (cont)

	Elementary school teachers			*Secondary school teachers*		
Characteristic	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
Student absenteeism is a problem						
Agree	30.8	34.0	35.2	24.3	33.3	42.3
Disagree	37.4	36.2	26.4	32.2	34.6	33.1
Student apathy is a problem						
Agree	25.6	34.8	39.6	23.2	33.1	43.7
Disagree	42.3	35.9	21.8	38.3	36.0	25.7
Has a student from this school ever threatened to injure you?						
Yes	25.5	33.1	41.3	20.3	29.8	49.9
No	37.6	36.0	26.3	29.7	35.6	34.7
Has a student from this school ever physically attacked you?						
Yes	32.4	33.7	33.8	21.6	29.0	49.4
No	35.2	35.6	29.2	27.1	34.1	38.7
Teachers have a great deal of influence over school policy*	48.8	37.0	14.2	48.5	33.8	17.7
Teachers have complete control in the classroom*	42.5	35.2	22.3	32.4	34.8	32.8

*Teachers were asked a series of questions about how much influence they had over school policies and how much control they had in the classroom. They answered each question on a five point scale where "0" meant no influence or no control and "5" meant a great deal of influence or complete control. The numbers reported here are the percentage of teachers whose average response to the questions was above "4."

Table reads: 37.6 percent of teachers who agree that the administration is supportive have high levels of satisfaction.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

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Several of the strong associations were in the category of student behavior and school atmosphere. The item "Parents support teachers' work" was related to teacher satisfaction , although the relationship was somewhat different for elementary school teachers than for secondary school teachers. Elementary school teachers who agreed that parents supported teachers' work were highly clustered in the high level of satisfaction while the converse was true for teachers who disagreed. At the secondary level, teachers who agreed that parents were supportive were fairly evenly distributed between the three levels of satisfaction. Teachers who disagreed were much more likely to fall into the category of low satisfaction; 46 percent of teachers who disagreed that parents supported teachers' work were categorized as having low levels of satisfaction. Perceptions of student apathy were negatively associated with teacher satisfaction for both elementary and secondary public school teachers. Teachers who agreed that student apathy was a problem had a disproportionate percentage in the low satisfaction category, while teachers who disagreed that it was a problem were more likely to have high levels of satisfaction. The same trend is true of student misbehavior. Teachers who agreed that student misbehavior interfered with teaching were clustered more towards the low end of satisfaction, while teachers who disagreed were clustered more towards the high end of satisfaction.

In the general category of administrative support and leadership, one item was strongly associated with teacher satisfaction: "Staff members are recognized for a job well done." Secondary school teachers were especially sensitive to this item. While those who agreed with this item were fairly well distributed across the three levels of satisfaction, teachers who disagreed with it were highly clustered in the category of low satisfaction; over 50 percent of public secondary school teachers who disagreed with this item were categorized as having low levels of satisfaction.

The category pertaining to teacher control over working environment proved to be strongly related to teacher satisfaction. At the elementary level, teachers who agreed with the statement "Teachers participate in making important school decisions" had a large proportion of teachers with high levels of satisfaction. Teachers who disagreed with that statement were much more likely to have low levels of satisfaction at both the elementary and secondary levels. Furthermore, teachers who felt they had a great deal of influence over school policy were much more likely to be clustered in the high level of satisfaction. Having complete control in the classroom was also associated with high levels of satisfaction at the elementary level. Overall, professional autonomy is positively related to teacher satisfaction.

Do the same attitudes and perceptions of the workplace relate to satisfaction for private school teachers as for public school teachers?

Many of the factors that were important to the satisfaction of public school teachers were also important in the private sector, including administrative support, parental support, availability of materials, and staff recognition (see table 8). Other important factors include "Routine duties and paperwork interfere with teaching," "Principal frequently discusses instructional practices with teachers," and "There is a great deal of cooperative effort among the staff."

The relationship of interference of routine duties with satisfaction was strong for private elementary school teachers. Twenty–one percent of teachers who agreed with this statement had low levels of satisfaction, compared to only 12 percent of teachers who disagreed with this statement. At the secondary level, 30 percent of private school teachers who agreed with this statement had low levels of satisfaction; 16 percent of those who disagreed were categorized as having low levels of satisfaction.

Agreeing that principals frequently discuss instructional practices with teachers is also positively correlated with high teacher satisfaction. While almost 50 percent of all private elementary school teachers are classified as having high levels of satisfaction, 56 percent of those that agree with the above statement and only 40 percent of those who disagree are classified as having high levels of satisfaction.

Finally, perceptions of staff cooperation have a strong relationship with satisfaction at the secondary level. While private secondary school teachers who agree that there is a great deal of cooperative effort among the staff are distributed across the three levels of satisfaction in a similar pattern as the total private secondary population, those who disagree are strongly clustered in the area of low satisfaction. For example, 44 percent of all private secondary school teachers were categorized as having high levels of satisfaction, but only 32 percent of teachers who disagreed that there is a great deal of staff cooperation were categorized as having high levels of satisfaction. Conversely, 23 percent of all private secondary school teachers were categorized as having low levels of satisfaction, compared to 41 percent of those who disagreed that there is a great deal of staff cooperation.

Table 8— Percent distribution of private school teachers across levels of satisfaction, by school level and selected attitudes and perceptions of workplace condition 1993-94

Characteristic	*Elementary school teachers*			*Secondary school teachers*		
	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
TOTAL	49.7	34.4	15.9	44.4	32.9	22.7
Administration is supportive and encouraging						
Agree	51.4	33.8	14.8	46.7	34.0	19.4
Disagree	37.2	38.6	24.2	34.3	27.9	37.8
The level of student misbehavior in this school interferes with teaching						
Agree	40.0	34.3	25.7	30.0	30.3	39.7
Disagree	52.5	34.4	13.1	48.1	33.5	18.4
Teachers participate in making important school decisions						
Agree	53.2	32.7	21.1	35.6	32.9	31.5
Disagree	39.6	39.2	21.1	35.6	32.9	31.5
Parents support teachers' work						
Agree	52.0	34.3	13.7	47.8	33.7	18.5
Disagree	33.0	35.0	32.0	32.8	30.0	37.2
Routine duties and paperwork interfere with teaching						
Agree	43.4	35.6	21.0	38.0	32.3	29.7
Disagree	54.8	33.3	11.9	50.4	33.4	16.2
Necessary materials are available						
Agree	50.5	35.4	14.1	44.7	33.5	21.8
Disagree	45.7	28.8	25.5	42.6	29.1	28.3
Principals frequently discuss instructional practices with teachers						
Agree	56.4	32.1	11.5	53.9	29.5	16.6
Disagree	40.8	37.4	21.8	37.9	35.2	26.9
There is a great deal of cooperative effort among the staff						
Agree	50.7	34.5	14.7	46.3	33.8	19.8
Disagree	40.6	33.2	26.2	32.1	26.8	41.1
Staff members are recognized for a job well done						
Agree	53.1	33.9	12.9	47.9	33.9	18.1
Disagree	35.3	36.2	28.4	34.7	29.9	35.3

Table 8— Percent distribution of private school teachers across levels of satisfaction, by school level and selected attitudes and perceptions of workplace condition: 1993-94 (cont)

Characteristic	*Elementary school teachers* High satisfaction	Moderate satisfaction	Low satisfaction	*Secondary school teachers* High satisfaction	Moderate satisfaction	Low satisfaction
Student absenteeism is a problem						
Agree	48.0	32.4	19.6	33.6	33.7	32.8
Disagree	49.9	34.6	15.5	48.1	32.6	19.3
Student apathy is a problem						
Agree	35.0	35.8	29.2	33.7	32.3	34.0
Disagree	52.2	34.1	13.7	51.4	33.2	15.4
Has a student from this school ever threatened to injure you?						
Yes	41.1	28.9	30.1	36.5	28.4	35.2
No	50.1	34.6	15.3	45.4	33.4	21.2
Has a student from this school ever physically attacked you?						
Yes	43.2	38.4	18.3	62.0	19.3	18.7
No	49.9	34.2	15.9	44.0	33.2	22.8
Teachers have a great deal of influence over school policy*	61.4	25.5	13.1	51.0	26.3	22.7
Teachers have complete control in the classroom*	53.5	33.5	13.1	46.3	33.9	19.8

*Teachers were asked a series of questions about how much influence they had over school policies and how much control they had in the classroom. They answered each question on a five point scale where "0" meant no influence or no control and "5" meant a great deal of influence or complete control. The numbers reported here are the percentage of teachers whose average response to the questions was above "4."

Table reads: 51.4 percent of teachers who agree that the administration is supportive have high levels of satisfaction.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

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Overall, for both public and private schools, teacher attitudes about the workplace are strongly associated with their level of satisfaction.[12] Several teacher, school and community characteristics have also shown significant, albeit weak, relationships with teacher satisfaction. The next section describes the most and least satisfied teachers in terms of the same characteristics examined in this section.

Section 2: Description of the most and least satisfied teachers

The purpose of this section is to describe the most and least satisfied teachers. The first section examined the satisfaction levels of all teachers by subgroup. This section studies the most satisfied teachers and the least satisfied teachers in order to determine the characteristics of these two groups and how they differ from each other. Teachers who gave the most positive response available on all three questions were categorized as the most satisfied teachers. In other words, this group is comprised of teachers who said if they could do it all over again, they would definitely become teachers again, they intend to continue teaching as long as they are able, and they strongly disagree that teaching is a waste of their time. Approximately 21 percent of teachers fell into this group. Teachers were considered to be least satisfied if they answered that they certainly would not become a teacher again, probably would not, or chances about even. In addition, none of the teachers in this group intended to remain in teaching as long as they were able, and no teacher strongly disagreed that they felt it was a waste of their time to do their best[13]. Approximately 9 percent of teachers fell into this group. Thus, this section differs from the first section in two ways: (1) In section 1, satisfaction was dependent variable, and in this section, satisfaction is the independent variable, with the teacher and school characteristics, compensation, and workplace conditions being the dependent variables; and (2) Different cut points were used to determine who were the most and least satisfied teachers in this section than in the first section where teachers were basically divided into thirds.

Overall, the most satisfied teachers tend to teach in private schools and in elementary schools, but very few other school, community, classroom or teacher background characteristics stand out as being strongly related to satisfaction with teaching as a career. Once again, workplace conditions distinguished most clearly between the most and least satisfied teachers; the most satisfied teachers worked in a more supportive, safe, autonomous environment than the least satisfied teachers.

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[12] Some of this relationship may be an artifact of both the dependent and independent variables coming from opinion questions. If a teacher is feeling negative/positive, he/she may answer all opinion questions negatively/positively.

[13] The rule for determining the least satisfied teachers was less clear cut. Because the IRT analysis gave the most weight to the question about choosing teaching as a career again this question was given the most weight with less emphasis given to the other two questions in determining a cut point.

Where are the most and least satisfied teachers teaching?

An initial examination of the kinds of schools at which the most and least satisfied teachers work shows that private schools and elementary schools are more likely to have the most satisfied teachers than public and secondary schools. As seen in table 9 and figure 5, approximately 15 percent of full-time teachers were from private schools, but nearly 20 percent of the most satisfied teachers and less than 6 percent of the least satisfied teachers taught at private schools.

Table 9— School sector and school level of the most and least satisfied teachers: 1993–94

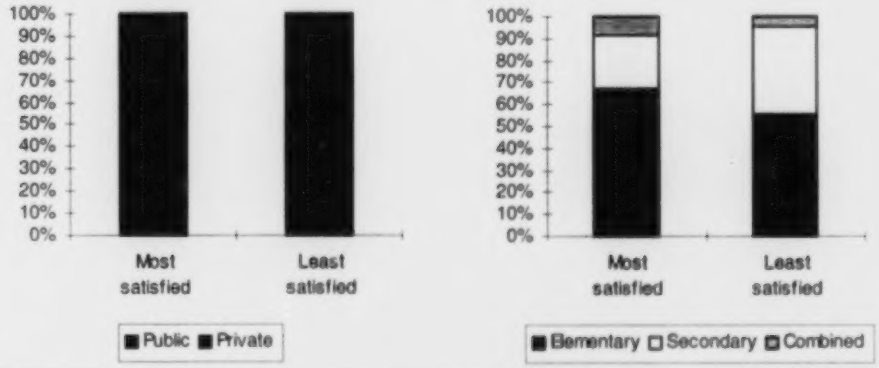
Characteristic	Total	Level of satisfaction Most satisfied	 Least satisfied
TOTAL	100.0	21.1	9.1
School sector			
Public	85.5	80.1	94.5
Private	14.5	19.9	5.5
School level			
Elementary	62.8	67.4	55.2
Secondary	31.1	24.2	40.1
Combined	6.1	8.4	4.6

Table reads: 80.1 percent of the most satisfied teachers teach in public schools

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94

Likewise, table 9 and figure 5 show that while approximately 63 percent of all teachers taught elementary schools, they were disproportionately represented in the satisfied and dissatisfied groups: sixty–seven percent the most satisfied teachers taught at elementary schools, while 55 percent of the least satisfied teachers taught at elementary schools.

Figure 5— School sector and school level of the most and least satisfied teachers



SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94

What other school characteristics differ for the most and least satisfied teachers? Do the teachers themselves have different backgrounds or characteristics?

Differences in school and teacher characteristics were examined with diverse findings. Overall, no effects were found for salary and very few for class size. Public school teachers were fairly different from private school teachers, and elementary school teachers were very different from secondary school teachers in terms of what factors differentiated the most from the least satisfied teachers.

The greatest number of differences between the most and least satisfied teachers were found for public elementary school teachers (table 10). The most satisfied teachers tended to have more benefits, and teach in smaller schools with fewer minorities and fewer students in poverty. Moreover, the teachers tended to be younger and have less teaching experience than the least satisfied teachers. The salaries and class sizes were similar for the most and least satisfied public elementary school teachers. In contrast, the most and least satisfied private elementary school teachers only differed substantially in one category, years of teaching experience. Also, the effect was the opposite of that of the public elementary teachers, as the most satisfied private elementary teachers on average had more years of teaching experience than the least satisfied teachers.

At the secondary level, the most satisfied public school teachers were similar to the most satisfied public elementary teachers. They tended to be younger and have fewer years of teaching experience than the least satisfied teachers. They also taught at schools with fewer minorities and fewer students in poverty than the least satisfied teachers. At the secondary level, the number of benefits was similar for the most and least satisfied teachers and school size was not associated with satisfaction. Once again, salary and class size were also unimportant in differentiating between the two groups. In private secondary schools, all characteristics were similar between the most and least satisfied teachers.

Table 10—Mean characteristics of the most and least satisfied teaches, by school sector and level: 1993–94

Characteristic	*Elementary teachers*			*Secondary teachers*		
	Total	Most Satisfied	Least Satisfied	Total	Most satisfied	Least satisfied
Public						
Salary	$33,008	$33,768	$33,024	$32,856	$34,616	$34,024
Number of benefits	3.1	3.3	2.9	3.2	3.3	3.2
Years of teaching experience	14.4	13.6	15.7	15.6	14.2	16.9
Age	43.8	43.1	44.4	44.1	43.3	45.3
Class size	26.5	26.4	26.1	24.5	26.7	25.4
School size	533	565	628	829	1,078	1,092
Percent of students in school who are minorities	35.0	30.5	39.1	24.3	27.4	32.8
Percent of students in school who receive free/reduced price lunches	42.7	37.6	44.1	26.3	22.5	26.7
Private						
Salary	$18,668	$19,624	$19,276	$24,756	$25,964	$26,220
Number of benefits	2.7	2.7	2.6	3.6	3.7	3.6
Years of teaching experience	11.0	12.4	10.8	12.3	13.8	12.8
Age	42.2	42.9	41.6	42.1	42.6	42.9
Class size	22.2	22.1	22.3	20.9	21.4	17.6
School size	225	271	259	442	565	521
Percent of students in school who are minorities	24.1	22.8	24.2	22.0	19.5	19.1
Percent of students in school who receive free/reduced price lunches	18.4	18.3	23.9	22.6	21.3	—

—Too few cases for a reliable estimate.

Table reads: The average salary of the most satisfied public elementary school teachers is $33,768.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher and School Questionnaires.

Looking further into the school and teacher background items, only three other characteristics emerge as distinctive for the most and least satisfied teachers: sex of the teacher, grade level taught, and community type (tables 11 and 12). In three of the four types of schools, there was a disproportionate number of females in the most satisfied group. For example, although 84 percent of all public elementary school teachers were female, almost 89 percent of the most satisfied public elementary school teachers were female, compared to 80 percent of the least satisfied public elementary school teachers. The only school type that showed no differences in the percentage of females between the most and least satisfied teachers was private secondary schools. In addition, the grade taught offered some distinguishing information; at the elementary level, the most satisfied teachers were more likely to teach grades 1–4 than grades 5–8, and the least satisfied teachers were more likely to teach grades 5–8 than 1–4. Finally, in public schools, the most satisfied teachers were more likely to be from urban fringes than from central cities, and the least satisfied teachers were more likely to be from central cities than from the urban fringe. Private schools are more likely to be located in central cities than in any other type of community, and there were no differences between the most and least satisfied teachers. There were no consistent differences found for the race/ethnicity of the teacher, the teacher's education background, or the teacher's main teaching field. Once again, the one exception to these findings was in private secondary schools. The least satisfied teachers in these schools were more likely to teach foreign language (22 percent) than science (6 percent). The most satisfied teachers were equally likely to teach foreign language, math, and science; they showed no differences in main teaching field.

Table 11—Percent distribution of the most and least satisfied public school teachers across selected school and teacher background characteristics, by school level: 1993–94

	Elementary teachers			*Secondary teachers*		
Characteristic	Total	Most Satisfied	Least Satisfied	Total	Most satisfied	Least satisfied
TOTAL	100.0	21.8	8.7	100.0	14.4	11.4
Sex						
Male	16.1	11.4	19.9	47.7	44.1	50.0
Female	83.9	88.6	80.1	52.3	55.9	50.0
Race/ethnicity/ of teacher						
White, non-Hispanic	85.1	85.0	82.4	88.5	86.3	88.3
Black, non-Hispanic	8.2	8.3	11.4	6.2	7.5	6.1
Hispanic	4.8	5.0	4.9	3.6	4.1	3.9
Native American	1.1	1.1	0.8	0.9	0.8	0.9
Asian/Pacific Islander	0.8	0.7	0.4	0.7	1.2	0.9
Highest degree earned						
High school diploma	0.2	0.1	0.3	1.2	1.3	0.8
Associate degree	0.0	0.1	0.0	0.4	0.3	0.3
Bachelor's degree	55.1	58.1	53.4	46.8	49.9	46.5
Master's degree	40.1	36.5	41.0	45.5	42.2	45.3
Educational specialist or professional diploma	4.2	4.8	4.7	5.0	5.0	6.0
Doctorate or first professional degree	0.4	0.4	0.6	1.1	1.3	1.0
Grade level taught						
Kindergarten	6.6	7.2	4.8	0.0	—	—
Grades 1–4	38.6	43.3	35.9	0.1	—	—
Grades 5–8	33.8	28.5	41.6	12.1	13.3	12.2
Grades 9–12	0.2	—	—	72.5	70.8	72.7
Multiple grade levels	20.8	20.8	17.3	15.3	15.7	15.1
Main teaching field						
General	57.6	61.8	53.4	0.3	0.3	0.1
English/teaching/language arts	7.4	7.8	6.8	15.5	15.0	15.6
Arithmetic/mathematics	4.1	2.7	5.1	12.9	11.8	14.0
Social studies/history	2.8	1.69	3.1	11.8	11.5	11.2
Science	3.3	2.8	3.6	1.7	10.5	14.5
Foreign language	0.7	0.4	1.2	5.2	5.3	5.6
Art or music	3.9	3.2	5.9	6.1	6.8	5.3
Vocational/technical	1.0	0.6	1.0	11.7	10.0	11.0
Special education	9.9	9.7	10.6	9.4	11.6	8.6
Bilingual or ESL education	1.7	1.8	1.1	0.7	0.9	0.8
Other	7.5	7.6	8.1	14.8	16.3	13.3
Community type						
Central city	29.5	26.3	36.7	25.5	23.0	29.7
Urban fringe	31.1	35.2	24.9	31.8	33.2	28.8
Small town/rural	39.4	38.5	38.4	42.7	43.8	41.5

—Too few cases for a reliable estimate.

Table reads: 11.4 percent of the most satisfied public elementary school teachers are male.

NOTE: All categories may not sum to 100 percent due to rounding errors.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher and School Questionnaires.

Table 12—Percent distribution of the most and least satisfied private school teachers across selected school and teacher background characteristics, by school level: 1993–94

	Elementary teachers			*Secondary teachers*		
Characteristic	Total	Most Satisfied	Least Satisfied	Total	Most satisfied	Least satisfied
TOTAL	100.0	37.6	3.6	100.0	32.3	6.2
Sex						
Male	11.3	8.5	16.9	51.5	48.2	46.8
Female	88.7	91.5	83.1	48.5	51.8	53.2
Race/ethnicity/ of teacher						
White, non-Hispanic	91.4	89.8	94.8	92.0	92.2	91.4
Black, non-Hispanic	4.0	4.9	0.2	1.9	1.6	0.4
Hispanic	3.1	3.6	3.2	4.7	4.9	5.0
Native American	1.2	1.3	1.9	1.2	1.2	2.4
Asian/Pacific Islander	0.3	0.3	0.0	0.2	0.0	0.8
Highest degree earned						
High school diploma	4.1	4.5	2.3	1.2	0.7	3.5
Associate degree	1.6	1.9	0.0	0.4	0.8	0.0
Bachelor's degree	69.2	65.6	70.7	48.9	48.5	51.7
Master's degree	22.1	24.4	22.3	44.7	44.9	38.1
Educational specialist or professional diploma	2.6	3.2	1.8	2.5	2.5	0.9
Doctorate or first professional degree	0.4	0.4	2.9	2.3	2.6	5.9
Grade level taught						
Kindergarten	8.8	10.2	6.2	0.0	—	—
Grades 1–4	41.4	43.8	27.6	0.2	—	—
Grades 5–8	29.1	26.6	42.9	1.4	1.3	0.4
Grades 9–12	0.1	—	—	83.2	85.8	74.4
Multiple grade levels	20.6	19.3	23.4	15.2	12.7	24.3
Main teaching field						
General	71.2	73.7	62.3	0.0	0.0	0.0
English/teaching/language arts	7.0	6.3	9.4	14.9	15.8	16.3
Arithmetic/mathematics	5.3	5.0	3.7	14.6	13.0	14.9
Social studies/history	3.4	2.8	5.4	10.9	8.6	1.6
Science	3.3	2.6	4.9	13.4	12.3	5.8
Foreign language	0.8	0.6	1.0	1.1	8.5	21.8
Art or music	2.2	1.3	3.6	6.7	6.4	7.0
Vocational/technical	0.1	0.1	0.0	3.2	3.2	5.5
Special education	0.6	0.5	0.8	4.9	7.5	10.8
Bilingual or ESL education	0.0	0.0	0.0	0.5	0.6	0.0
Other	6.3	6.8	9.0	19.8	23.9	16.4
Community type						
Central city	42.3	43.0	48.5	46.9	48.6	56.6
Urban fringe	39.7	39.9	32.2	36.5	38.4	27.4
Small town/rural	18.0	17.1	19.2	16.6	13.1	15.9

—Too few cases for a reliable estimate.

Table reads: 8.5 percent of the most satisfied private elementary school teachers are male.

NOTE: All categories may not sum to 100 percent due to rounding errors.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher and School Questionnaires.

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How do opinions and attitudes about working conditions differ between the most and least satisfied teachers?

Teachers' responses to the attitude questions supported the most satisfied teachers giving the most positive responses and vice versa. or example, almost 90 percent of the most satisfied teachers in public elementary schools agreed that their administration was supportive and caring, while only 63 percent of the least satisfied teachers agreed. Conversely, 65 percent of the least satisfied teachers in public elementary schools agreed that the level of student misbehavior interfered with teaching, compared to 30 percent of the most satisfied teachers. At the secondary school level, there were large differences in many attitudes, including the percentage of teachers agreeing that parents supported teachers' work and that a student had ever threatened to injure him/her. In public schools, 56 percent of the most satisfied teachers agreed that parents were supportive, while only 25 percent of the least satisfied teachers agreed; the numbers were 86 and 51 for private schools. Likewise, 49 percent of the least satisfied teachers said a student had threatened to injure them, compared to 23 percent of the most satisfied teachers in public schools. In private schools, the numbers were lower, but 27 percent of the least satisfied teachers reported being threatened by a student compared to 8 percent of the most satisfied teachers.

Table 13—Percent of most and least satisfied teachers who agree with the following statements, by school sector and level: 1993–94

	Elementary teachers			*Secondary teachers*		
Characteristic	Total	Most Satisfied	Least Satisfied	Total	Most satisfied	Least satisfied
			Public			
Administration is supportive and encouraging	80.5	88.6	63.1	76.3	85.9	60.1
The level of student misbehavior in this school interferes with teaching	43.8	30.3	65.2	46.1	29.7	65.8
Teachers participate in making important school decisions	62.1	73.6	37.9	49.6	62.9	33.5
Parents support teachers' work	57.9	72.5	35.5	42.6	56.2	24.7
Routine duties and paperwork interfere with teaching	72.6	63.6	82.2	72.1	58.9	81.5
Necessary materials are available	73.4	80.6	61.2	72.8	78.8	61.0
Principals frequently discuss instructional practices with teachers	49.3	60.2	36.4	35.4	47.9	24.1
There is a great deal of cooperative effort among the staff	80.9	86.6	68.1	71.6	77.3	59.7
Staff members are recognized for a job well done	71.3	81.6	50.0	61.3	75.4	41.8
Student absenteeism is a problem	38.0	32.0	49.2	70.2	62.3	79.7
Student apathy is a problem	44.4	29.5	66.0	76.9	64.3	88.6
A student from this school has ever threatened to injure you	22.7	15.4	40.3	32.2	22.9	49.1
A student from this school has ever physically attacked you	12.0	10.4	15.1	8.0	5.5	12.3
Teachers have a great deal of influence over school policy*	1.5	2.3	0.9	1.0	2.0	0.4
Teachers have complete control in the classroom*	44.6	56.4	29.1	55.3	69.2	38.6

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Table 13—Percent of most and least satisfied teachers who agree with the following statements, by school sector and level: 1993–94 (cont)

	Elementary teachers			*Secondary teachers*		
Characteristic	Total	Most Satisfied	Least Satisfied	Total	Most satisfied	Least satisfied
			Private			
Administration is supportive and encouraging	88.2	93.0	75.3	82.0	87.2	62.0
The level of student misbehavior in this school interferes with teaching	22.5	16.1	47.4	20.1	12.5	51.1
Teachers participate in making important school decisions	74.2	79.4	53.9	63.4	73.2	48.6
Parents support teachers' work	87.7	93.4	68.5	77.5	85.5	51.1
Routine duties and paperwork interfere with teaching	44.5	34.4	53.8	48.1	38.5	73.2
Necessary materials are available	84.1	86.1	65.2	85.8	84.8	84.1
Principals frequently discuss instructional practices with teachers	57.1	67.5	30.2	40.7	54.1	26.8
There is a great deal of cooperative effort among the staff	89.6	92.8	83.7	86.6	91.2	72.9
Staff members are recognized for a job well done	80.7	89.0	57.3	73.6	80.2	41.1
Student absenteeism is a problem	9.7	9.0	8.9	25.0	15.7	46.4
Student apathy is a problem	14.4	9.5	32.2	39.3	25.9	62.3
A student from this school has ever threatened to injure you	4.4	2.3	14.3	10.7	8.2	27.2
A student from this school has ever physically attacked you	3.1	2.3	4.1	2.5	3.5	4.4
Teachers have a great deal of influence over school policy*	2.9	3.7	0.7	3.4	4.0	6.6
Teachers have complete control in the classroom*	56.6	62.6	42.6	74.5	77.7	68.5

*Teachers were asked a series of questions about how much influence they had over school policies and how much control they had in the classroom. They answered each question on a five point scale where "0" meant no influence or no control and "5" meant a great deal of influence or complete control. The numbers reported here are the percentage of teachers whose average response to the questions was above "4."

Table reads: 88.6 percent of the most satisfied public elementary school teachers agree that the administration is supportive and encouraging.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

Overall, in terms of background characteristics of teachers and schools, and in terms of attitudes, there are distinct differences between the most and least satisfied teachers in the workforce.

Section 3: Multivariate analysis of satisfaction with teaching as a career

As shown in the first section of results, teachers' perceptions of various working conditions at their school are associated with their satisfaction. The second section described the most satisfied teachers as working in a supportive, low–violence environment. The analyses presented in this last section describe the strength of the association between teacher satisfaction and those workplace conditions open to policy changes, such as administrative support, school climate, instructional resources, and compensation.. Specifically, these analyses assess the relative contribution of workplace conditions after accounting for other relevant teacher and school characteristics. The previous sections demonstrated that many factors are associated with teacher satisfaction; now the question becomes "To what extent can workplace conditions explain the differences in teacher satisfaction when teacher and school characteristics are the same?"

To answer this question, several analyses were carried out using multiple regression, providing information about the relative association between teacher satisfaction and workplace conditions while controlling for teacher and school characteristics.[14] For example, the results from this technique indicate the degree to which one could accurately predict a teacher's satisfaction level knowing various nominal characteristics of the school, its quality as a workplace, and the teacher's background. The more accurate the statistical prediction, the stronger the association between teacher satisfaction and these factors. Further, the degree to which any single factor contributes to predicting teacher satisfaction indicates the association between satisfaction and that factor while holding the other factors constant. So, for example, if this multivariate analysis shows that higher levels of satisfaction are associated with higher levels of staff support after controlling for the size of school enrollment, it means that teacher satisfaction and staff support are related regardless of the size of school enrollment.

The analyses was done in two steps. The first step regresses teacher satisfaction on a set of teacher background and school characteristic variables. These include [15]:

- school sector (public or private);
- size of enrollment of school;
- size of minority enrollment of school;
- teacher's gender;

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[14] OLS estimates of regression parameters are reported here for each model.

[15] The free lunch and teacher age variables included in the descriptive analyses as background variables were eliminated from the multivariate analysis because they correlated highly with percent minority and age, respectively, and did not provide any further information.

- teacher's race;
- teacher's education;
- number of years teacher has taught; and
- teacher's main teaching field.

This model, which is referred to hereafter as the "background model," includes those variables that, unlike some of the workplace and compensation variables examined below, are not easily influenced by policy but which may be associated with teacher satisfaction. This model serves as a control for all other analyses of elements of workplace conditions and teacher compensation , which are more open to change through policy. The regression results can provide information about the association between teacher satisfaction and these background variables in the form of a prediction equation, indicating the degree to which one could accurately predict a teacher's level of satisfaction knowing other characteristics about that teacher and the school in which they work.

In the second step, four sets of variables measuring workplace conditions—administrative support, student behavior, social environment, and teacher control over work—and one set of variables measuring compensation are added to the background model. An assessment is then made as to how the addition of workplace conditions improved the prediction of teacher satisfaction beyond what was gained from knowing the other characteristics of the teacher and the school. The more the workplace conditions information adds to prediction, the larger is the relative association between workplace conditions and teacher satisfaction. It is important to note that these analyses are not attempting to explain all the variation among teachers in their degree of satisfaction. Instead, they are examining a specific set of variables to see if certain factors amenable to change account for a significant proportion of the variance in teacher satisfaction.

How related are general characteristics of schools and teachers to teacher satisfaction?

The first model, the background model shown in table 14, demonstrates that as a group the background variables are only weakly associated with teacher satisfaction. The first column presents the unstandardized regression coefficient indicating the size of the association between teacher satisfaction and the independent variable listed on the left. The second column shows the standard error associated with each coefficient. The "R^2" at the bottom of the table describes the percent of the variation in teacher satisfaction explained by all the variables in the model.

The ten factors included in the background model account for just under five percent ($r^2 = .048$) of the variation among teachers in degree of satisfaction. n other words, knowing all of this information about a teacher would not greatly increase accurate prediction of how satisfied that teacher is with teaching. In this model there are only a few specific factors which have even a minimal association with teacher satisfaction.

Controlling for other background variables, teaching in private schools, elementary schools, suburban schools, and schools with lower percentages of minority students are associated with higher teacher satisfaction. Also female teachers, black and Hispanic teachers, teachers with less experience, and teachers of general subjects have higher levels of satisfaction. All the associations between individual factors and teacher satisfaction in this model must be considered in light of the overall weak association between these background variables and teacher satisfaction. General characteristics of a school and a teacher are not strongly associated with satisfaction. Note, for example, that the enrollment size of a school is not related to satisfaction, nor is a teacher's education level.

Table 14— OLS estimates of teacher satisfaction regressed on school and teacher background characteristics

School and teacher background characteristics	(b)[2]	(se)
Public[1]	-0.36***	0.020
Secondary[2]	-0.10***	0.018
Urban[3]	-0.003	0.018
Suburban[3]	0.10***	0.017
School size[4]	-0.001	0.001
Percent of students who are minority[5]	-0.002***	0.000
Male teacher[6]	-0.12***	0.016
Black teacher[7]	0.11***	0.034
Hispanic teacher[7]	0.15***	0.033
Native American teacher[7]	0.03	0.039
Asian teacher[7]	0.10	0.084
Years teaching experience	-0.10***	0.008
Highest degree earned	0.01	0.012
Main teaching field - General[8]	0.10***	0.022
Main teaching field - English[8]	-0.01	0.021
Main teaching field - Mathematics[8]	-0.08***	0.028
Main teaching field - Social studies[8]	-0.03	0.031
Main teaching field - Science[8]	-0.10***	0.028
Main teaching field - Foreign language[8]	-0.12***	0.039
Intercept	0.649	
R^2	0.048	
n	40709	

NOTE: The (b)[2] values shown are unstandardized regression coefficients.

[1] Control group is private schools. [2] Control group is elementary schools. [3] Control group is rural schools. [4] Per 100 students. [5] This is a continuous variable ranging from 0 to 100 percent. [6] Control group is female teachers. [7] Control group is white teachers. [8] Control group is other teaching field. This "other" group now includes many of the subjects listed separately in tables 2, 3, 11, and 12. Only the largest core fields were included separately in the regression analysis.

***Significant at a<.001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher and School questionnaires.

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How related are working conditions and compensation to teacher satisfaction?

To answer this question, five separate models were estimated and presented in table 15. In each case the model adds a set of variables measuring different parts of the teaching environment to all of the background variables described above. To simplify the results, and since the background variables serve as controls, individual coefficients for the background variables are not listed here, but can be seen in table B1 of the appendix. The **first model** introduces administrative support variables composed of teacher perceptions of conditions that can be moderated by the principal of a school or, potentially, the school district, including administrative support, staff cooperation, availability of resources, and the interference of routine duties[16]. The **second model** includes a cluster of student behavior and school atmosphere factors, such as student behavior, student apathy, violence, and parental support[17]. Although these factors may be difficult to influence through policy, they are behavioral characteristics that are subject to change, unlike student characteristics such as percent minority and percent free lunch used in the background model. The **third model** includes factors relating to a teacher autonomy, such as communication with the principal, control over classroom decisions, and influence over school policy[18] all of which can be influenced by policies on school governance. The **fourth model** includes teacher compensation factors, such as salary, benefits, and outside employment, factors which can be changed at the national, state, and local levels through budgetary amendments. Lastly, a **full model** with all variables is presented.

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[16] The item about staff recognition included in the descriptive analyses was eliminated from the multivariate analysis because it correlated highly with administrative support and staff cooperation and did not provide any further information.

[17] The item about student absenteeism included in the descriptive analyses was eliminated from the multivariate analysis because it correlated highly with student apathy and did not provide any further information.

[18] The item about participation in decision making included in the descriptive analyses was eliminated from the multivariate analysis because it correlated highly with influence over school policy and did not provide any further information.

Table 15— OLS estimates of teacher satisfaction regressed on policy relevant workplace conditions and teacher compensation[1]

Characteristic	Model 1		Model 2		Model 3		Model 4		Model 5	
	(b)[2]	(se)	(b)[2]	(se)	(b)[2]	(se)	(b)[2]	(se)	(b)[2]	(se)
Administrative support and leadership										
Administrator is supportive and encouraging	0.15***	0.009	0	0	0	0	0	0	0.07***	0.084
There is cooperative effort among staff members	0.10***	0.009							0.03***	0.009
Necessary materials are available	0.09***	0.008							0.02***	0.008
Routine duties and paperwork do not interfere with teaching	0.17***	0.007							0.11***	0.006
Student behavior and school atmosphere										
Student misbehavior does not interfere with teaching			0.14***	0.007					0.10***	0.007
Student apathy is not a problem			0.14***	0.008					0.09***	0.008
Violence is not a problem			0.12***	0.016					0.08***	0.015
Parents support teachers' work			0.18***	0.007					0.12***	0.007
Teacher control over working environment										
Principal frequently discusses instructional practices					0.12***	0.008			0.06***	0.008
Teachers have great control in their classroom					0.20***	0.010			0.13***	0.009
Teachers have great influence over school policy					0.14***	0.008			0.06***	0.008
Teacher compensation										
Salary[3]							0.01***	0.001	0.01***	0.001
Benefits							0.07***	0.012	0.06***	0.011
Other opportunities within school for income							0.11***	0.015	0.08***	0.013
Work outside of school for extra income							-0.08***	0.015	-0.06***	0.013
Intercept	-1.06		-1.04		-0.95		0.59		-2.19	
R2	0.14		0.17		0.14		0.07		0.22	
n	40705		40705		40706		40642		40631	

NOTE: The measure has been recoded so that positive responses correlate with higher satisfaction.
For example, one original item was worded "Student apathy is a problem;" the responses were recoded so they matched the statement "Student apathy is not a problem."

[1] All models control for teacher, school, and community background characteristics. See table B.1 for a complete list of all variables included.

[2] Unstandardized regression coefficient.

[3] Per 1000 dollars.

*Significant at a<.05.

**Significant at a<.01.

***Significant at a<.001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher and School questionnaires.

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Each column in table 15 represents the estimates of one the five models described above. The first number in each column is the estimated unstandardized regression coefficient indicating the size of the association between teacher satisfaction and the independent variable listed to the far left. For example, the first coefficient in Model 1 is .15 for administrator support, meaning that if teachers perceived more support for their jobs from administrators, their satisfaction was higher. The second number in each column is the standard error of the estimate; if the estimate is at least twice the size of its standard error, the estimate is statistically (i.e., high probability) different from zero in the population.

Note that all the estimates of workplace conditions, whether they are about administrative support, student behavior, or teacher control over the workplace, are statistically significant and related to teacher satisfaction, even after controlling for all the background variables discussed above. Teachers are more satisfied with teaching as a career when they receive support from administrators, cooperation from their colleagues, the resources needed to teach, and when they are not burdened with non-teaching duties. Teacher satisfaction is higher in schools where student misbehavior, apathy, and violence are not a problem and where parents support teachers' efforts. Similarly, in schools where principals and teachers discuss approaches to instruction and where teachers have the perception of control over their own classrooms and influence on school policies, teacher satisfaction is higher. The same is true for compensation; higher salaries, more benefits and more opportunities to earn extra income in the school are associated with greater satisfaction. The only exception is that when teachers earn additional salary outside the school, their satisfaction tends to be lower.

In general, workplace conditions and compensation have a positive relationship with teacher satisfaction regardless of whether or not a teacher teaches in a public or private school, or an elementary or secondary school; regardless of its location and the type of community it serves; regardless of the size or the racial makeup of the enrollment; and regardless of the teacher's gender, race, education and prior years of experience as a teacher.

To evaluate the degree to which policy related factors such as workplace conditions and compensation are associated with teacher satisfaction, a comparison between each of the models in table 15 to the background model in table 14 can be made. Table 16 presents this comparison to show which models have more predictive power of teacher satisfaction. For example, if all the information about teachers that is included in the background model was known, it would only predict about five percent of the variation among teachers in their satisfaction. By adding workplace conditions to this model, prediction of career satisfaction is improved over four times to 22 percent. Table 16 shows the degree to which prediction is improved for each cluster of workplace variables.

Table 16— Comparing associations between satisfaction and background characteristics versus various types of workplace conditions

		Adding workplace conditions and compensation				
	School and teacher background characteristics	Administrative support and leadership	Student behavior and school atmosphere	Teacher control over working environment	Teacher compensation	All variables
Percent variation explained	5	14	17	14	7	22
F-test comparing improvement in prediction by adding workplace variables	N/A	623,967 (3, 34,730) p<.001	640,107 (3, 33,868) p<.001	830,907 (2, 34,774) p<.001	34,302 (3, 37,607) p<.001	35,220 (14, 31,543) p<.001

NOTE: The F-test is shown in three parts: The top number is the calculated F statistic, the middle number is the degrees of freedom, and the bottom number is the relative significance. See Technical Appendix C for the formula used to calculate the second row.

The first row of table 16 shows the percent of teacher satisfaction predicted by each model. The first column shows the variation between teachers on the amount of satisfaction explained (on a scale of 0 to 100) using just the teacher and school background characteristics, and the second column shows the amount of variation explained when administrative support and leadership variables are added. The third column shows the amount of variation explained when student behavior and school atmosphere variables are added to the background model, and so on. For example, the information in the background model predicts 5 percent of total satisfaction variation among teachers, while the information in the background model *and* in the student behavior and school atmosphere variables explain 17 percent of the variation among teachers.

The second row presents the statistical test of the percent improvement in explaining teacher satisfaction over just the background model when information about workplace conditions and compensation is added to the analysis. For example, the second column, administrative support and leadership predicts 14 percent of total satisfaction with teaching as a career, almost three times the amount predicted by the background characteristics alone. This increase in prediction power is statistically significant at p<.001, as seen in the second row of that column. All types of workplace conditions significantly improve the prediction of satisfaction with teaching as a career.

These results show that workplace conditions triple (from 5 percent to 14 and 17 percent) prediction of teacher satisfaction compared to school characteristics and teacher background. This indicates that workplace factors are substantially more associated with how satisfied a teacher is with teaching as career than are background factors. It is interesting to note that although information about teacher compensation also improves prediction, it is only a modest improvement (from 5 to 7 percent). Lastly when all information about a teacher's workplace and compensation are added, prediction of teacher satisfaction improves over four times (22 percent) what it is when knowing only school characteristics and teacher background.

Discussion

In each of the three analyses in this report, we find that workplace conditions which are open to policy are related to satisfaction. This is true in the general description of satisfaction among all teachers, in a comparison of the most and least satisfied teachers, and in a multivariate assessment of relative associations between factors and satisfaction. Although the associations are in the moderate range, working conditions are associated with teacher satisfaction after other important factors, such as gender, years of experience, and school composition are taken into account. More administrative support and leadership, good student behavior, a positive school atmosphere, and teacher autonomy are all associated with higher teacher satisfaction. Also, the analyses show that certain teacher background variables and school characteristics are only weakly related to teacher satisfaction, and they are not nearly as useful in predicting a teacher's satisfaction with teaching as a career. For example, although female teachers tend to be more satisfied than male school teachers and teachers with less experience tend to be more satisfied than teachers with more experience, these relationships are not as substantial as the one between administrative support and teacher satisfaction. The same is true when nominal characteristics of schools such as public or private sector are compared with workplace conditions in the school.

Although workplace conditions are strongly associated with teacher satisfaction, compensation is only modestly related. The descriptive analyses showed no relation between salary or benefits and teacher satisfaction. After controlling for other factors, however, the multivariate analysis indicated that salary and benefits did contribute to teacher satisfaction in a positive manner: the higher the salary and the greater the benefits, the higher the satisfaction score. But, although statistically significant, compensation factors did not contribute a large amount to the prediction of teacher satisfaction. This is not to say that salary and benefits are not important to teachers, only that satisfaction with teaching as a career is weakly related to differences in compensation.

These findings provide information to policy makers interested in increasing the satisfaction levels of teachers. Very few of teacher background or nominal school characteristics that are an inseparable part of any school or community were associated with teacher satisfaction. Instead, this report demonstrates that teacher satisfaction may be shaped in part by workplace conditions that are within the reach of policy at the school and district levels. Focusing on workplace conditions, therefore, is a feasible way to improve teacher satisfaction. Regardless of the type of school, community or teacher, a safe working environment, supportive administration, and involved parents are connected with high levels of teacher satisfaction. Equally important are the teachers' feelings of autonomy. The results of this study imply that involving teachers in school–wide policy decisions and giving them some degree of control in their classrooms are associated with high levels of career satisfaction. It is not possible to say, however, whether these factors result in high levels of teacher satisfaction, or whether highly satisfied teachers seek out or create environments that provide them with greater autonomy.

If, as the literature suggests, teacher satisfaction relates to both teaching quality and turnover rates, focusing on policies related to satisfaction may go a long way towards improving the quality of instruction in our nation's schools. These results indicate that there are a number of aspects of workplace conditions that are within the realm of education policy and are associated with teacher satisfaction.

Appendix A

Standard Error Tables

Table 1a— Standard errors for percent distribution of teachers across levels of satisfaction, by school sector and school level: 1993–94

Characteristic	Level of satisfaction High	Moderate	Low
TOTAL	0.30	0.31	0.38
School sector			
Public	0.33	0.35	0.42
Private	0.68	0.57	0.60
School level			
Elementary	0.86	0.32	0.55
Secondary	0.83	0.28	0.51
Combined	0.88	0.35	0.43

SOURCE: U.S. Department of Education, National Center for Education Statistics Schools and Staffing Survey 1993–94.

Table 2a— Standard errors for percent distribution of public school teachers across levels of satisfaction, by school level and selected school and classroom characteristics: 1993-94

School and classroom characteristics	*Elementary school teachers*			*Secondary school teachers*		
	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
TOTAL	0.48	0.54	0.59	0.34	0.29	0.34
Community type						
Central city	0.98	1.16	0.88	0.59	0.67	0.72
Urban fringe	0.99	1.06	1.00	0.55	0.60	0.60
Small town/rural	0.78	0.71	0.72	0.44	0.44	0.44
School size						
Less than 150	2.99	2.68	2.19	1.26	1.69	1.49
150-499	0.91	0.77	0.68	0.81	0.63	0.83
500-749	0.92	0.96	1.01	0.85	0.88	1.11
750 or larger	1.03	1.23	1.27	0.41	0.39	0.50
Percent of students who are minorities						
Less than 20 percent	0.71	0.78	0.87	0.45	0.42	0.46
20 percent or more	0.63	0.72	0.80	0.44	0.49	0.48
Percent of students receiving free/reduced price lunch						
Less than 5 percent	1.69	1.72	1.93	0.62	0.75	0.74
5 to 19 percent	1.08	1.06	1.32	0.49	0.55	0.59
20 percent or more	0.54	0.61	0.59	0.49	0.46	0.58
Grade level taught						
Kindergarten	2.13	1.90	1.76	—	—	—
Grades 1–4	0.86	0.82	0.83	—	—	—
Grades 5–8	0.76	1.02	1.06	0.80	1.03	1.18
Grades 9–12	—	—	—	0.37	0.35	0.39
Multiple grade levels	1.09	1.06	1.02	0.65	0.72	0.95
Main teaching field						
General	0.69	0.71	0.63	7.16	4.90	5.68
English/reading/language arts	1.95	2.02	1.92	0.83	0.85	1.00
Arithmetic/mathematics	2.66	2.84	2.47	0.81	0.92	0.85
Social studies/history	2.83	2.91	3.58	1.04	0.94	1.04
Science	3.30	2.88	2.89	0.82	0.79	0.94
Foreign language	6.43	9.20	8.22	1.36	1.46	1.49
Art or music	2.59	2.67	2.41	1.38	1.50	1.46
Vocational/technical	5.40	6.80	6.96	1.07	1.07	0.94
Special education	1.77	1.81	1.63	1.14	1.18	1.05
Bilingual or ESL education	3.37	3.92	2.16	3.14	2.85	3.21
Other	1.96	1.92	2.08	0.86	0.84	1.11

—Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

Table 3a— Standard errors for percent distribution of private school teachers across levels of satisfaction, by school level and selected school and classroom characteristics: 1993-94

School and classroom characteristics	Elementary school teachers: High satisfaction	Elementary school teachers: Moderate satisfaction	Elementary school teachers: Low satisfaction	Secondary school teachers: High satisfaction	Secondary school teachers: Moderate satisfaction	Secondary school teachers: Low satisfaction
TOTAL	0.93	0.78	0.66	1.45	1.01	1.19
Community type						
Central city	1.51	1.30	0.98	1.98	1.34	1.68
Urban fringe	1.68	1.40	0.94	1.97	1.59	1.89
Small town/rural	2.10	1.69	1.49	3.29	3.09	2.42
School size						
Less than 150	1.99	1.95	1.42	3.59	3.20	3.70
150–499	1.27	0.88	0.93	2.66	1.92	1.81
500–749	2.90	2.48	1.83	2.60	2.20	2.01
750 or larger	8.17	6.85	3.34	2.51	1.67	2.01
Percent of students who are minorities						
Less than 20 percent	1.13	0.90	0.81	1.77	1.11	1.62
20 percent or more	1.56	1.43	1.16	2.35	1.85	1.48
Percent of students receiving free/reduced price lunch						
Less than 5 percent	1.11	1.04	0.76	1.37	1.14	1.22
5 to 19 percent	2.33	1.66	1.74	4.38	3.23	3.25
20 percent or more	2.95	3.00	1.97	9.10	5.70	4.95
Grade level taught						
Kindergarten	2.71	2.63	1.80	0.00	0.00	0.00
Grades 1–4	1.37	1.12	0.86	0.00	0.00	0.00
Grades 5–8	1.66	1.59	1.31	0.00	8.17	0.00
Grades 9–12	0.00	0.00	0.00	1.55	1.04	1.22
Multiple grade levels	1.83	1.98	1.52	3.87	2.72	4.21
Main teaching field						
General	0.96	0.84	0.68	0.00	0.00	0.00
English/reading/lang. arts	2.97	3.16	2.44	2.76	2.22	3.47
Arithmetic/mathematics	3.77	3.34	2.82	3.00	3.00	2.26
Social studies/history	3.88	3.18	3.88	3.23	3.76	2.16
Science	4.34	3.96	3.82	2.87	2.57	2.98
Foreign language	0.00	0.00	0.00	2.70	3.04	3.20
Art or music	5.52	6.11	5.60	5.17	4.03	3.61
Vocational/technical	0.00	0.00	0.00	6.51	7.38	5.52
Special education	0.00	0.00	0.00	9.93	3.93	8.38
Bilingual or ESL ed.	0.00	0.00	0.00	0.00	0.00	0.00
Other	3.83	3.49	3.51	2.83	1.99	2.57

— Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

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Table 4a— Standard errors for percent distribution of public school teachers across levels of satisfaction, by school level and selected teacher background characteristics: 1993–94

	Elementary			*Secondary*		
Characteristic	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
TOTAL	0.48	0.54	0.59	0.34	0.29	0.34
Sex						
Male	1.26	1.24	1.34	0.52	0.35	0.53
Female	0.59	0.59	0.67	0.43	0.37	0.41
Race/ethnicity of teacher						
White, non-Hispanic	0.53	0.58	0.65	0.37	0.30	0.36
Black, non-Hispanic	1.85	1.85	2.15	1.51	1.30	1.34
Hispanic	2.66	2.65	2.01	1.75	2.02	2.09
Native American	2.50	2.55	2.30	2.83	3.01	3.27
Asian/Pacific Islander	7.22	5.62	4.61	3.89	2.79	3.48
Age						
Under 30	1.86	1.53	1.47	1.25	1.29	1.49
30–39	1.24	1.12	1.07	0.86	0.80	0.75
40–49	0.74	0.77	0.88	0.55	0.47	0.59
Over 49	0.88	1.08	1.00	0.64	0.61	0.59
Highest degree earned						
High school diploma	0.00	0.00	0.00	2.86	3.40	3.74
Associate degree	0.00	0.00	0.00	4.45	6.79	8.19
Bachelor's degree	0.68	0.76	0.70	0.53	0.41	0.56
Master's degree	0.80	0.88	0.87	0.55	0.50	0.48
Educational specialist or professional diploma	3.01	1.96	2.65	1.52	1.51	1.52
Doctorate or first professional degree	9.61	9.28	10.90	3.03	4.17	3.95
Years of teaching experience						
3 years or less	1.78	1.57	1.51	1.00	0.93	0.92
4–9 years	1.04	1.09	1.20	0.88	0.69	0.93
10–19 years	0.80	0.95	0.87	0.56	0.53	0.60
20 years or more	0.74	1.14	1.10	0.52	0.44	0.47
Class size						
1–10	1.95	2.19	2.06	1.04	1.03	1.00
11–18	1.03	1.13	1.13	0.53	0.57	0.55
19–27	0.75	0.70	0.83	0.64	0.58	0.69
28 or more	1.03	1.12	1.08	0.61	0.60	0.71

SOURCE: U.S. Department of Education, National Center for Education Statistics, and Staffing Survey 1993–94, Teacher questionnaire.

Table 5a— **Standard errors for percent distribution of private school teachers across levels of satisfaction, by school level and selected teacher background characteristics: 1993–94**

Characteristic	Elementary High satisfaction	Elementary Moderate satisfaction	Elementary Low satisfaction	Secondary High satisfaction	Secondary Moderate satisfaction	Secondary Low satisfaction
TOTAL	0.93	0.78	0.66	1.45	1.01	1.19
Sex						
Male	2.94	2.19	2.76	1.72	1.35	1.38
Female	1.01	0.51	0.60	2.23	1.47	1.95
Race/ethnicity of teacher						
White, non-Hispanic	0.94	0.82	0.69	1.61	1.09	1.29
Black, non-Hispanic	4.08	4.43	2.46	0.00	9.06	0.00
Hispanic	4.59	3.76	3.74	5.35	4.74	4.18
Native American	5.45	3.63	4.37	7.34	9.05	6.89
Asian/Pacific Islander	0.00	0.00	0.00	0.00	0.00	0.00
Age						
Under 30	2.02	1.92	1.32	3.83	2.37	2.53
30–39	1.43	1.55	1.53	2.29	2.23	2.01
40–49	1.58	1.37	1.11	2.22	1.71	1.94
Over 49	1.66	1.45	1.07	2.23	1.88	2.18
Highest degree earned						
High school diploma	5.84	5.20	5.48	0.00	0.00	0.00
Associate degree	7.46	7.07	6.14	0.00	0.00	0.00
Bachelor's degree	1.11	0.90	0.76	2.14	1.58	1.73
Master's degree	1.88	1.70	1.44	1.73	1.40	1.15
Educational specialist or professional diploma	5.22	5.79	2.65	7.95	5.67	7.69
Doctorate or first professional degree	0.00	0.00	0.00	9.84	3.91	9.68
Years of teaching experience						
3 years or less	1.84	1.67	1.32	2.82	1.90	2.56
4–9 years	1.71	1.43	1.32	2.57	1.98	2.13
10–19 years	1.37	1.31	1.06	2.68	2.24	2.10
20 years or more	2.29	1.84	1.36	2.66	1.43	2.02
Class size						
1–10	3.89	3.88	2.56	4.57	3.16	3.80
11–18	1.45	1.33	1.28	1.77	1.58	1.45
19–27	1.66	1.55	1.11	2.72	1.69	2.38
28 or more	1.60	1.41	1.19	2.01	1.68	1.67

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

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Table 6a— Standard errors for the percent of teachers across levels of satisfaction, by school sector, school level, and teacher compensation factors: 1993–94

Characteristic	*Elementary*			*Secondary*		
	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
Public						
TOTAL	0.48	0.54	0.59	0.34	0.29	0.34
Salary						
Less than $25,000	1.15	0.78	1.02	0.71	0.66	0.73
$25,000–$40,000	0.75	0.74	0.72	0.41	0.42	0.49
Over $40,000	0.96	1.41	1.42	0.63	0.61	0.66
Benefits						
None	2.86	2.33	2.37	1.41	1.59	1.75
At least medical insurance	0.52	0.58	0.64	0.36	0.33	0.39
1 to 3 types	0.72	0.69	0.72	0.37	0.41	0.51
4 to 6 types	0.67	0.97	0.97	0.53	0.56	0.56
7 to 8 types	0.00	0.00	0.00	0.00	0.00	0.00
Supplement salary with non-school job						
Yes	1.19	1.13	1.11	0.63	0.58	0.61
No	0.57	0.65	0.69	0.38	0.41	0.40
Earn additional compensation through school						
Yes	0.89	0.79	0.98	0.46	0.39	0.52
No	0.57	0.63	0.65	0.52	0.43	0.53
Private						
Total	0.93	0.78	0.66	1.45	1.01	1.19
Salary						
Less than $25,000	1.11	0.95	0.75	1.96	1.53	1.51
$25,000–$40,000	1.95	1.56	1.76	1.94	1.51	1.90
Over $40,000	0.00	0.00	0.00	5.22	4.08	4.93
Benefits						
None	2.67	2.29	1.43	6.62	5.67	6.65
At least medical insurance	1.03	0.87	0.84	1.70	1.13	1.34
1 to 3 types	1.20	1.02	0.81	1.67	1.37	1.79
4 to 6 types	1.75	1.45	1.38	2.12	1.53	1.45
7 to 8 types	0.00	0.00	0.00	8.63	8.47	5.94
Supplement salary with non-school job						
Yes	1.40	1.47	1.43	2.59	1.92	2.40
No	1.16	0.91	0.72	1.38	1.12	1.19
Earn additional compensation through school						
Yes	2.11	1.93	1.54	1.57	1.12	1.42
No	0.92	0.85	0.69	2.26	1.65	1.81

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

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Table 7a— Standard errors for the percent distribution of public school teachers across levels of satisfaction, by school level and selected attitudes and perceptions of workplace conditions

	Elementary			Secondary		
Attitude and perceptions of workplace conditions	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
Administration is supportive and encouraging						
Agree	0.58	0.59	0.54	0.39	0.31	0.41
Disagree	1.12	1.47	1.55	0.63	0.63	0.71
The level of student misbehavior in this school interferes with teaching						
Agree	0.80	0.82	0.89	0.49	0.43	0.63
Disagree	0.67	0.74	0.65	0.47	0.44	0.42
Teachers participate in making important school decisions						
Agree	0.68	0.64	0.61	0.40	0.40	0.48
Disagree	0.75	0.90	0.96	0.47	0.41	0.41
Parents support teachers' work						
Agree	0.80	0.86	0.59	0.51	0.51	0.54
Disagree	0.65	0.86	0.97	0.41	0.38	0.42
Routine duties and paperwork interfere with teaching						
Agree	0.56	0.63	0.78	0.39	0.29	0.41
Disagree	1.03	1.11	0.64	0.64	0.58	0.64
Necessary materials are available						
Agree	0.61	0.70	0.68	0.41	0.38	0.41
Disagree	0.85	1.11	1.03	0.56	0.63	0.75
Principal frequently discusses instructional practices with teachers						
Agree	0.73	0.77	0.68	0.61	0.56	0.54
Disagree	0.76	0.77	0.89	0.39	0.43	0.42
There is a great deal of cooperative effort among the staff						
Agree	0.56	0.59	0.59	0.37	0.35	0.40
Disagree	1.25	1.44	1.59	0.61	0.66	0.65
Staff members are recognized for a job well done						
Agree	0.60	0.55	0.55	0.44	0.38	0.47
Disagree	1.00	1.17	1.35	0.48	0.46	0.54
Student absenteeism is a problem						
Agree	0.73	0.98	0.93	0.41	0.33	0.46
Disagree	0.55	0.62	0.65	0.62	0.57	0.57
Student apathy is a problem						
Agree	0.61	0.86	0.89	0.34	0.33	0.43
Disagree	0.72	0.71	0.59	0.82	0.78	0.66
Has a student from this school ever threatened to injure you?						
Yes	0.98	1.21	1.27	0.49	0.60	0.65
No	0.56	0.58	0.63	0.46	0.34	0.39
Has a student from this school ever physically attacked you?						
Yes	1.63	1.33	1.68	1.01	1.20	1.55
No	0.50	0.58	0.56	0.37	0.30	0.35
Teachers have a great deal of influence over school policy	4.41	4.17	3.51	2.85	2.36	2.15
Teachers have complete control in the classroom	0.77	0.94	0.77	0.49	0.43	0.53

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

Table 8a—Standard errors for percent distribution of private school teachers across levels of satisfaction, by school level and selected attitudes and perceptions of workplace conditions

Attitude and, perceptions of workplace conditions	Elementary			Secondary		
	High satisfaction	Moderate satisfaction	Low satisfaction	High satisfaction	Moderate satisfaction	Low satisfaction
Administration is supportive and encouraging						
Agree	0.94	0.83	0.61	1.45	0.95	1.23
Disagree	2.25	2.13	2.55	3.53	3.38	3.49
The level of student misbehavior in this school interferes with teaching						
Agree	1.90	1.82	1.85	3.00	2.23	2.88
Disagree	1.00	0.88	0.61	1.29	1.16	0.96
Teachers participate in making important school decisions						
Agree	1.00	0.85	0.76	1.84	1.31	1.11
Disagree	1.90	1.77	1.37	2.04	1.59	2.13
Parents support teachers' work						
Agree	0.89	0.81	0.61	1.32	0.98	1.11
Disagree	2.29	2.33	2.46	3.00	2.29	2.50
Routine duties and paperwork interfere with teaching						
Agree	1.39	1.30	1.12	2.08	1.66	1.92
Disagree	1.30	1.19	0.85	1.88	1.42	1.42
Necessary materials are available						
Agree	0.98	0.88	0.75	1.43	1.06	1.24
Disagree	1.58	1.41	1.47	4.23	2.77	3.04
Principal frequently discusses instructional practices with teachers						
Agree	1.11	1.08	0.72	2.02	1.83	1.57
Disagree	1.24	1.24	1.18	1.59	1.11	1.43
There is a great deal of cooperative effort among the staff						
Agree	1.01	0.84	0.68	1.52	1.05	1.23
Disagree	2.96	2.40	2.53	3.23	2.43	3.39
Staff members are recognized for a job well done						
Agree	0.97	0.86	0.62	1.66	1.33	1.04
Disagree	2.01	1.77	1.96	2.52	2.09	2.75
Student absenteeism is a problem						
Agree	2.57	2.16	2.36	2.62	2.27	2.23
Disagree	0.94	0.76	0.68	1.51	1.28	1.19
Student apathy is a problem						
Agree	1.68	2.34	2.21	2.36	1.76	1.96
Disagree	0.98	0.85	0.68	2.00	1.47	1.53
Has a student from this school ever threatened to injure you?						
Yes	3.73	3.27	3.33	5.20	3.90	4.60
No	0.91	0.77	0.66	1.41	1.08	1.14
Has a student from this school ever physically attacked you?						
Yes	5.27	5.02	3.35	6.16	4.23	4.39
No	0.94	0.83	0.66	1.47	1.00	1.22
Teachers have a great deal of influence over school policy	6.85	4.09	4.28	8.75	5.16	8.12
Teachers have complete control in the classroom	1.29	1.09	0.90	1.68	1.25	1.17

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

Table 9a— Standard errors for school sector and school level of the most and least satisfied teachers: 1993–94

Characteristic	*Level of satisfaction*		
	Total	Most satisfied	Least satisfied
TOTAL	0	0.32	0.18
School sector			
Public	0.17	0.52	0.35
Private	0.17	0.52	0.35
School level			
Elementary	0.35	0.66	1.12
Secondary	0.19	0.48	1.02
Combined	0.04	0.38	0.30

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94.

Table 10a— Standard errors for mean characteristics of teachers with extremely high and low levels of satisfaction, by school control and level: 1993-94

Characteristic	*Elementary teachers* Total	*Elementary teachers* Most satisfied	*Elementary teachers* Least satisfied	*Secondary teachers* Total	*Secondary teachers* Most satisfied	*Secondary teachers* Least satisfed
Public						
Salary	$697.45	$266.74	$329.14	$249.76	$234.61	$268.00
Number of benefits	0.02	0.03	0.04	0.09	0.03	0.03
Years of teaching experience	0.55	0.21	0.35	0.61	0.19	0.24
Age	0.19	0.26	0.37	0.25	0.19	0.21
Class size	0.56	0.45	0.59	0.94	0.54	0.45
School size	52.47	8.78	11.29	26.4	15.71	21.18
Percent of students in school who are minorities	2.79	0.93	1.52	0.94	0.68	0.82
Percent of students in school who receive free/reduced price lunches	3.42	1.04	1.45	0.68	0.45	0.76
Private						
Salary	$957.40	$243.81	$571.93	$623.96	$371.36	$984.07
Number of benefits	0.05	0.05	0.14	0.09	0.08	0.15
Years of teaching experience	1.04	0.28	0.59	1.61	0.41	1.11
Age	0.72	0.33	0.74	1.12	0.47	1.38
Class size	0.68	0.28	0.93	1.00	0.57	1.41
School size	5.74	6.12	12.19	19.80	21.69	47.39
Percent of students in school who are minorities	1.34	1.21	4.58	2.00	1.06	2.49
Percent of students in school who receive free/reduced price lunches	1.04	1.62	3.59	6.81	6.40	—

— Too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher and School questionnaires.

Table 11a— Standard errors for percent distribution of the most and least satisfied public school teachers across selected school and teacher background characteristics, by school level

Teacher characteristic	Elementary teachers Total	Elementary teachers Most satisfied	Elementary teachers Least satisfied	Secondary teachers Total	Secondary teachers Most satisfied	Secondary teachers Least satisfied
TOTAL	0.00	0.50	0.31	0.00	0.25	0.21
Sex						
Male	0.32	1.10	0.83	0.26	0.38	0.30
Female	0.56	0.57	0.37	0.37	0.37	0.25
Race/ethnicity of teacher						
White, non-Hispanic	0.56	0.52	0.35	0.37	0.29	0.21
Black, non-Hispanic	0.59	1.58	1.34	0.36	1.00	0.78
Hispanic	0.38	2.17	1.29	0.22	1.39	1.33
Native American	0.40	2.38	1.08	0.24	2.05	1.67
Asian/Pacific Islander	0.08	6.24	1.38	0.07	3.82	2.72
Highest degree earned						
High school diploma	0.53	—	—	0.40	2.44	1.68
Associate degree	0.04	—	—	0.10	2.90	2.48
Bachelor's degree	0.01	0.62	0.42	0.01	0.39	0.34
Master's degree	0.51	0.79	0.47	0.40	0.39	0.32
Educational specialist or professional diploma	0.57	2.70	1.71	0.38	1.14	1.01
Doctorate or first professional degree	0.24	9.64	6.43	0.15	3.14	2.08
Grade level taught						
Kindergarten	0.62	1.78	1.07	0.39	—	—
Grades 1–4	0.32	0.89	0.40	0.02	4.32	2.79
Grades 5–8	0.66	0.66	0.69	0.03	0.71	0.67
Grades 9–12	0.88	13.00	9.45	0.46	0.27	0.26
Multiple grade levels	0.04	0.96	0.58	0.58	0.49	0.46
Main teaching field						
General	0.48	0.70	0.33	0.40	5.39	1.13
English/reading/language arts	0.80	1.70	1.05	0.05	0.59	0.56
Arithmetic/mathematics	0.34	2.23	1.84	0.20	0.59	0.55
Social studies/history	0.24	2.35	2.19	0.18	0.72	0.63
Science	0.19	2.57	1.69	0.18	0.67	0.86
Foreign language	0.18	5.52	6.50	0.17	1.01	1.04
Art or music	0.11	2.19	1.56	0.16	1.12	0.97
Vocational/technical	0.20	4.85	2.31	0.17	0.65	0.68
Special education	0.12	1.55	0.99	0.25	0.92	0.69
Bilingual or ESL education	0.29	3.43	1.29	0.22	2.87	2.28
Other	0.15	1.95	1.26	0.06	0.61	0.63
Community type						
Central city	0.72	1.04	0.78	0.55	0.40	0.48
Urban fringe	0.96	0.88	0.56	0.62	0.43	0.35
Small town/rural	0.73	0.76	0.42	0.48	0.35	0.30

— Not applicable.

NOTE: All categories may not sum to 100 percent due to rounding errors.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

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Table 12a— Standard errors for percent distribution of the most and least satisfied private school teachers across selected school and teacher background characteristics, by school level

	Elementary teachers			Secondary teachers		
Teacher characteristic	Total	Most satisfied	Least satisfied	Total	Most satisfied	Least satisfied
TOTAL	0.00	1.02	0.25	0.00	1.36	0.88
Sex						
Male	0.38	2.90	1.12	0.82	1.71	1.17
Female	0.64	1.10	0.28	1.10	1.98	1.25
Race/ethnicity of teacher						
White, non-Hispanic	0.64	1.04	0.28	1.10	1.51	0.98
Black, non-Hispanic	0.77	4.24	0.15	0.74	—	—
Hispanic	0.53	4.14	1.66	0.33	5.51	3.07
Native American	0.45	6.45	3.75	0.59	6.37	5.03
Asian/Pacific Islander	0.17	—	—	0.20	—	—
Highest degree earned						
High school diploma	0.71	5.72	0.96	1.16	—	—
Associate degree	0.52	7.55	0.00	0.34	—	—
Bachelor's degree	0.22	1.21	0.31	0.24	1.78	1.13
Master's degree	0.75	1.74	0.61	1.27	1.61	0.64
Educational specialist or professional diploma	0.95	5.42	1.87	1.18	7.32	1.16
Doctorate or first professional degree	0.29	—	—	0.41	7.46	9.54
Grade level taught						
Kindergarten	0.71	2.30	0.87	0.91	—	—
Grades 1–4	0.48	1.32	0.31	0.00	—	—
Grades 5–8	0.78	1.68	0.66	0.11	—	—
Grades 9–12	0.67	—	—	0.29	1.47	0.64
Multiple grade levels	0.06	1.79	0.74	1.17	2.87	3.53
Main teaching field						
General	0.86	0.98	0.27	1.14	—	—
English/reading/language arts	0.77	3.31	1.50	0.00	2.64	1.89
Arithmetic/mathematics	0.37	3.36	0.89	0.78	2.52	1.21
Social studies/history	0.34	3.97	2.39	0.88	2.71	0.71
Science	0.32	3.78	1.96	0.59	2.33	0.83
Foreign language	0.27	—	—	0.63	2.78	2.78
Art or music	0.14	5.09	1.96	0.67	5.13	1.93
Vocational/technical	0.24	—	—	0.54	5.81	4.85
Special education	0.04	—	—	0.40	9.74	7.61
Bilingual or ESL education	0.10	—	—	0.95	—	—
Other	0.02	3.73	1.78	0.18	2.87	1.73
Community type						
Central city	1.29	2.05	4.82	1.81	2.56	7.69
Urban fringe	1.27	1.98	4.49	1.79	2.29	6.21
Small town/rural	0.77	1.20	3.49	1.66	1.54	4.29

— Not available.

NOTE: All categories may not sum to 100 percent due to rounding errors

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

Table 13a— Standard errors for percent of most and least satisfied teachers who agree with the following statements, by school sector and level

	Elementary teachers			*Secondary teachers*		
Attitude and perceptions of workplace conditions	Total	Most Satisfied	Least Satisfied	Total	Most satisfied	Least satisfied
Public						
Administration is supportive and encouraging	0.54	0.79	2.19	0.35	0.70	1.11
The level of student misbehavior in this school interferes with teaching	0.63	1.26	2.11	0.38	0.99	1.15
Teachers participate in making important school decisions	0.57	0.95	2.05	0.52	1.03	1.08
Parents support teachers' work	0.60	1.24	1.93	0.47	0.80	0.99
Routine duties and paperwork interfere with teaching	0.59	1.32	1.64	0.28	0.94	0.81
Necessary materials are available	0.56	0.88	1.62	0.38	0.85	0.93
Principal frequently discusses instructional practices with teachers	0.66	1.23	2.31	0.39	1.05	0.92
There is a great deal of cooperative effort among staff	0.47	0.88	1.95	0.35	0.73	1.17
Staff members are recognized for a job well done	0.59	0.99	2.31	0.51	1.00	1.12
Student absenteeism is a problem	0.71	1.09	1.94	0.50	0.92	0.94
Student apathy is a problem	0.78	1.24	1.88	0.37	0.79	0.61
A student from this school has ever threatened to injure you	0.60	1.11	1.84	0.35	0.73	0.90
A student from this school has ever physically attacked you	0.41	0.74	1.39	0.22	0.42	0.71
Teachers have a great deal of influence over school policy	0.24	0.36	0.39	0.12	0.28	0.15
Teachers have complete control in the classroom	0.95	1.17	1.89	0.85	0.97	1.18
Private						
Administration is supportive and caring	0.63	0.67	3.05	1.09	1.63	7.35
The level of student misbehavior in this school interferes with teaching	0.71	1.24	4.48	1.29	1.80	4.73
Teachers participate in making important school decisions	0.85	1.26	4.81	1.42	2.08	7.58
Parents support teachers' work	0.62	0.61	4.68	1.23	1.58	6.37
Routine duties and paperwork interfere with teaching	0.89	1.45	3.85	1.22	1.96	6.05
Necessary materials are available	0.76	0.91	4.60	0.98	2.17	3.11
Principal frequently discusses instructional practices with teachers	0.83	1.25	4.27	1.25	2.31	4.41
There is a great deal of cooperative effort among staff	0.54	0.78	2.82	0.67	1.41	4.39
Staff members are recognized for a job well done	0.67	0.91	4.33	1.21	1.92	5.00
Student absenteeism is a problem	0.44	0.82	2.14	1.25	1.30	5.71
Student apathy is a problem	0.53	0.72	4.42	1.17	2.30	4.91
A student from this school has ever threatened to injure you	0.41	0.39	3.12	0.97	1.84	5.12
A student from this school has ever physically attacked you	0.31	0.52	1.58	0.46	0.90	1.42
Teachers have a great deal of influence over school policy	0.70	0.72	0.77	0.65	0.73	5.40
Teachers have complete control in the classroom	1.12	1.34	5.25	1.05	1.74	4.18

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher questionnaire.

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T-tests on percent of teachers with high levels of satisfaction, by school sector, level and selected attitudes and perceptions of workplace conditions

Attitude and, perceptions of workplace conditions	Public elementary			Public secondary			Private elementary			Private secondary		
	%	se	t	%	se	t	%	se	t	%	se	t
Administration is supportive and encouraging												
Agree	37.6	0.58		29.4	0.39		51.4	0.94		46.7	1.45	
Disagree	23.7	1.12	11.0	18.1	0.63	15.3	27.2	2.25	5.8	34.3	3.53	3.2
The level of student misbehavior in this school interferes with teaching												
Agree	26.5	0.80		19.6	0.49		40.0	1.90		30.0	3.00	
Disagree	41.5	0.67	-14.4	32.8	0.47	-19.4	52.5	1.00	-5.8	48.1	1.29	5.5
Teachers participate in making important school decisions												
Agree	40.2	0.68		32.4	0.40		53.2	1.00		49.6	1.84	
Disagree	26.2	0.75	13.8	21.1	0.47	18.3	39.6	1.90	6.3	35.6	2.04	5.1
Parents support teachers' work												
Agree	41.5	0.80		33.4	0.51		52.0	0.89		47.8	1.32	
Disagree	25.8	0.65	15.2	21.7	0.41	17.9	33.0	2.29	7.7	32.8	3.00	4.6
Routine duties and paperwork interfere with teaching												
Agree	31.4	0.56		22.9	0.39		43.4	1.39		38.0	2.08	
Disagree	44.2	1.03	-10.9	36.5	0.64	-18.1	54.8	1.30	-6.0	50.4	1.88	-4.4
Necessary materials are available												
Agree	37.4	0.61		28.9	0.41		50.5	0.98		44.7	1.43	
Disagree	28.1	0.85	8.9	20.7	0.56	11.8	45.7	1.58	2.6	42.	4.23	0.5
Principal frequently discusses instructional practices with teachers												
Agree	41.1	0.73		34.0	0.61		56.4	1.11		53.9	2.02	
Disagree	28.8	0.76	11.7	22.7	0.39	15.6	40.8	1.24	9.4	37.9	1.59	6.2
There is a great deal of cooperative effort among the staff												
Agree	36.9	0.56		28.6	0.37		50.7	1.01		46.3	1.52	
Disagree	26.2	1.25	7.8	21.7	0.61	9.7	40.6	2.96	3.2	32.1	3.23	4.0
Staff members are recognized for a job well done												
Agree	39.3	0.60		31.6	0.44		53.1	0.97		47.9	1.66	
Disagree	24.1	1.00	13.0	18.9	0.48	19.5	35.3	2.01	8.0	34.7	2.52	4.4
Student absenteeism is a problem												
Agree	30.8	0.73		24.3	0.41		48.0	2.57		33.6	2.62	
Disagree	37.4	0.55	-7.2	32.2	0.62	-10.6	49.9	0.94	-0.7	48.1	1.51	-4.8
Student apathy is a problem												
Agree	25.6	0.61		23.2	0.34		35.0	1.68		33.7	2.36	
Disagree	42.3	0.72	-17.7	38.3	0.82	-17.0	52.2	0.98	-8.8	51.4	2.00	-5.7
Has a student from this school ever threatened to injure you?												
Yes	25.5	0.98		20.3	0.49		41.1	3.73		36.5	5.20	
No	37.6	0.56	-10.7	29.7	0.46	-14.0	50.1	0.91	-2.3	45.4	1.41	-1.7
Has a student from this school ever physically attacked you?												
Yes	32.4	1.63		21.6	1.01		43.2	5.27		62.0	6.16	
No	35.2	0.50	-1.6	27.1	0.37	-5.1	49.9	0.94	-1.3	44.0	1.47	2.8
Teachers have a great deal of influence over school policies*	48.8	4.41		48.5	2.85		61.4	6.85		51.0	8.75	
Teachers have complete control in the classroom*	42.5	0.77	1.4	32.4	0.49	5.6	53.5	1.29	1.1	46.3	1.68	0.5

---

*Teachers were asked a series of questions about how much influence they had over school policies and how much control they had in the classroom. They answered each question on a five point scale where "0" meant no or no control and "5" meant a great deal of influence or complete control. The numbers reported here are the percentage of teachers whose average response to the questions was above "4."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher Questionnaire.

Appendix B

Supplemental Regression Table

Table B1— OLS estimates of teacher satisfaction regressed on policy relevant workplace conditions and teacher compensation

Characteristic	Model 0		Model 1		Model 2		Modei 3		Model 4		Model 5	
	$(b)^2$	(se)	$(b)^2$	(se)	$(b)^2$	(se)	$(b)^2$	(se)	$(b)^2$	(se)	$(b)^2$	(se)
School and teacher background characteristics												
Public	-0.36 ***	0.020	-0.16 ***	0.017	-0.05 ***	0.018	-0.27 ***	0.019	-0.49 ***	0.023	-0.10 ***	0.021
Secondary	-0.10 ***	0.018	-0.05 ***	0.019	-0.01 **	0.017	-0.10 ***	0.018	-0.11 ***	0.017	-0.03 ***	0.017
Urban	-0.003	0.018	0.01	0.018	0.01	0.017	0.03 **	0.019	-0.04 *	0.019	-0.002	0.019
Suburban	0.10 ***	0.017	0.08 ***	0.015	0.07 ***	0.015	0.11 ***	0.016	0.02	0.017	0.02	0.016
School size^1	-0.001	0.001	0.001 ***	0.001	0.002 ***	0.001	0.005 ***	0.001	-0.003	0.001	0.004 ***	0.001
Percent of students who are minority	-0.002 ***	0.000	-0.002 ***	0.000	0.001 ***	0.000	-0.001 ***	0.000	-0.002 ***	0.000	0.001 ***	0.000
Sex of teacher	-0.12 ***	0.016	-0.13 ***	0.016	-0.09 ***	0.015	-0.12 ***	0.015	-0.15 ***	0.017	-0.14 ***	0.015
Black teacher	0.11 ***	0.034	0.07 *	0.031	-0.03	0.034	0.07 **	0.032	0.13 ***	0.035	-0.01	0.031
Hispanic teacher	0.15 ***	0.033	0.12 ***	0.032	0.004	0.036	0.10 ***	0.033	0.15 ***	0.033	-0.01	0.035
Native American teacher	0.03	0.039	0.01	0.036	-0.08 ***	0.038	-0.07 **	0.037	0.03	0.038	-0.11 ***	0.035
Asian teacher	0.10	0.084	0.09 **	0.075	0.06	0.073	0.07 **	0.069	0.11 **	0.083	0.07	0.063
Years teaching experience	-0.10 ***	0.008	-0.10 ***	0.007	-0.12 ***	0.007	-0.09 ***	0.007	-0.15 ***	0.008	-0.14 ***	0.008
Highest degree earned	0.01	0.012	0.03 ***	0.010	0.02 *	0.010	0.02 *	0.011	-0.02 *	0.011	0.002	0.010
Main teaching field - General	0.10 ***	0.022	0.12 ***	0.020	0.02	0.018	0.16 ***	0.020	0.11 ***	0.022	0.11 ***	0.020
Main teaching field - English	0.01	0.021	0.01	0.021	0.04 *	0.021	0.04	0.020	-0.01	0.020	0.08 ***	0.020
Main teaching field - Mathematics	0.08 ***	0.028	-0.07 ***	0.026	-0.03	0.023	0.01	0.026	-0.07 ***	0.028	0.03	0.023
Main teaching field - Social studies	-0.03	0.031	0.02 *	0.030	0.02 **	0.030	0.02 **	0.030	-0.03	0.031	0.07 ***	0.031
Main teaching field - Science	-0.10 ***	0.028	-0.04 ***	0.027	-0.03 ***	0.023	-0.05 ***	0.027	-0.09 ***	0.028	0.02 **	0.026
Main teaching field - Foreign language	-0.12 ***	0.039	-0.10 **	0.039	-0.09 **	0.038	-0.08 **	0.037	-0.14 ***	0.039	-0.08 **	0.038
Administrative support and leadership												
Administrator is supportive and encouraging			0.13 ***	0.009							0.07 ***	0.084
There is cooperative effort among staff members			0.10 ***	0.009							0.03 ***	0.009
Necessary materials are available			0.09 ***	0.008							0.02 ***	0.008
Routine duties & paperwork do not interfere with teaching			0.17 ***	0.007							0.11 ***	0.006
Student behavior and environmental conditions												
Student misbehavior does not interfere with teaching					0.14 ***	0.007					0.10 ***	0.007
Student apathy is not a problem					0.14 ***	0.008					0.09 ***	0.008
Violence is not a problem					0.12 ***	0.016					0.08 ***	0.015
Parents support teachers work					0.18 ***	0.007					0.12 ***	0.007
Teacher control over working environment												
Principal frequently discusses instructional practices							0.12 ***	0.008			0.06 ***	0.008
Teachers have great control in their classroom							0.20 ***	0.010			0.13 ***	0.009
Teachers have great influence over school policy							0.14 ***	0.008			0.06 ***	0.008
Teacher compensation												
Salary^2									0.01 ***	0.001	0.01 ***	0.001
Benefits									0.07 ***	0.012	0.06 ***	0.011
Other opportunities within school for income									0.11 ***	0.015	0.08 ***	0.013
Work outside of school for extra income									-0.08 ***	0.015	-0.06 ***	0.013
Intercept	0.649		1.06		-1.04		-0.95		0.59		-2.19	
R^2	0.048		0.14		0.17		0.14		0.07		0.22	
n	40709		40705		40705		40706		40642		40631	

NOTE: All coefficients shown are unstandardized regression coefficients. Zeros are not true zeros but are less than .000. Any negative statements have been reversed so that the more positive response is in the same direction as higher satisfaction. For example, one original item was worded "Student apathy is a problem;" the responses were recoded so they matched the statement "Student apathy is not a problem."

[1] Per 100 students.

[2] Per 1000 dollars.

*Significant at a<.05. **Significant at a<.01. ***Significant at a<.001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey 1993–94, Teacher and School questionnaires.

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Appendix C

Technical Notes

Technical Notes

I. Survey Content

The Schools and Staffing Survey (SASS) consists of four main component surveys administered to districts, schools, principals, and teachers. These surveys are the Teacher Demand and Shortage Survey, the School Principal Survey, the School Survey, and the Teacher Survey.

- The *Teacher Demand and Shortage* questionnaire has two sections, enrollment and teaching positions, and district policies. The first section, on enrollment and teaching positions, obtains information on the number of students, the number of teachers and librarians, position vacancies, new hires and certification status. The second section, on district policies, obtains information on teacher salary schedules and benefits, incentives, hiring and retirement policies, and high school graduation requirements. Race/ethnicity data on the student population and the teacher work force are also collected. The corresponding sections for private schools are incorporated into the Private School questionnaire. The data derived from this survey permit an assessment of teacher demand and shortage, the estimation of the number of teachers who hold certification in their field of assignment, and the affect of various policies on teacher supply and demand balances.

- *The School Principal* questionnaire obtains information about the age, sex, race/ethnicity, training, experience, salary, benefits, opinions and attitudes of school principals/headmasters. Questions required both objective responses (e.g., number of years of teaching experience) and judgmental responses (e.g., ranking the seriousness of school problems). The data derived from this survey provide insight into qualifications of school principals, which school problems principals view as serious, and how principals perceive their influence on school policies.

- *School* questionnaires were sent to public schools and private schools. The private school version of the questionnaire included items for identifying the religious or other affiliation of the school. This survey obtained information about schools such as student characteristics, staffing patterns, student-teacher ratios, types of programs and services offered, length of school day and school year, graduation and college application rates, and teacher turnover rates. These data provide information about the teaching experience of the staff, the sources of newly hired teachers, and the destinations of teachers who left the school the previous year.

- *Teacher* questionnaires were sent to teachers in public and private schools. The two versions of the questionnaire were virtually identical. The survey collected data from teachers regarding their education and training, teaching assignment, teaching experience, certification, teaching workload, perceptions and attitudes about teaching, job mobility, and workplace conditions. This information permits analyses of how these factors affect movement into and out of the teaching profession.

In addition to these four main components, the 1993–94 SASS featured: 1) similar principal, school, and teacher components specific to federally-funded Bureau of Indian Affairs or tribally–run Indian schools, 2) new components focusing on Library Media Specialists/Librarians and Library/Media Centers, and 3) a new student records component.

Copies of the questionnaires used in the SASS can be obtained by writing to:

Schools and Staffing Survey Questionnaires
National Center for Education Statistics
555 New Jersey Ave., NW, Rm. 422
Washington, DC 20208-5651

II. Target Population and Estimates for SASS

Target Populations. The target populations for 1993-94 SASS were:

- Local Education Agencies (LEAs) that employ elementary and/or secondary level teachers (for example: public school districts, state agencies that operate schools for special student populations, such as inmates of juvenile correctional facilities, and cooperative agencies that provide special services to more than one school district).
- Public and private schools with students in any of grades 1–12.
- Principals of those schools.
- Teachers in public and private schools who teach students in grades K–12.

Estimates. The SASS was designed to support estimates at both the state and national level for the public sector, and at the national and association level for the private sector. The association groups for private schools were determined by the school's association or affiliation group listed on the 1991–92 Private Schools Survey (the frame) and updated with 1992–93 association lists. The association groups were determined in the following order:

1) Military—membership in the Association of American Military Colleges and Schools;

2) Catholic—affiliation as Catholic or membership in the National Catholic Education Association or the Jesuit Secondary Education Association;

3) Friends—affiliation as Friends or membership in the Friends Council on Education;

4) Episcopal—affiliation as Episcopal or membership in the National Association of Episcopal Schools;

5) Hebrew Day—membership in the National Society for Hebrew Day Schools;

6) Solomon Schechter—membership in the Solomon Schechter Day Schools;

7) Other Jewish—other Jewish affiliation;

8) Missouri Synod—membership in the Lutheran Church, Missouri Synod;

9) Wisconsin Synod—membership in the Evangelical Lutheran Church–Wisconsin Synod or affiliation as Evangelical Lutheran–Wisconsin Synod;

10) Evangelical Lutheran —membership in the Association of Evangelical Lutheran Churches or affiliation as Evangelical Lutheran Church in America;

11) Other Lutheran—other Lutheran affiliation;

12) Seventh–Day Adventist—affiliation as Seventh-Day Adventist or membership in the General Conference of Seventh-Day Adventists;

13) Christian Schools International—membership in Christian Schools International;

14) Association of Christian Schools International—membership in the Association of Christian Schools International;

15) National Association of Private Schools for Exceptional Children—membership in the National Association of Private Schools for Exceptional Children;

16) Montessori—membership in the American Montessori Society or other Montessori associations;

17) National Association of Independent Schools—member of the National Association of Independent Schools;

18) National Independent Private School Association—member of the National Independent Private School Association;

19) All else—member of any other association specified in the PSS or affiliated with a group not listed above or not a member of any association.

Comparisons between public and private schools are only possible at the national and regional level, because private schools are selected for sampling by association group and not by geographic location, such as state.

The teacher survey was designed to support comparisons between new and experienced teachers. Comparisons between bilingual and nonbilingual teachers are possible at the national level.

III. Sample Design and Implementation[1]

A. Sampling Frames

1. Public Schools

The public school sampling frame was based on the 1991–92 school year CCD, which is a file of information collected annually by the NCES from all state education agencies and which is believed to be the most complete public school listing available. The frame includes regular public schools, Department of Defense operated military base schools, and special purpose schools such as special education, vocational, and alternative schools. After the deletion of duplicate schools, schools outside of the United States, and schools that only teach prekindergarten, kindergarten or postsecondary students, there were a total of 82,746 schools on the public school frame.

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[1] For a detailed description of the sample design see Abramson, R., Cole, C., Jackson, B., and Kaufman, S. *1993-94 Schools and Staffing Survey: Sample Design and Estimation*, U.S. Department of Education, National Center for Education Statistics, NCES 96-089.

2. Private Schools

The sampling frame for private schools was the 1991-92 Private School Survey, updated with 1992-93 association lists.[2] This data collection uses two components to develop estimates of the number of private schools in the United States. A list frame was the primary private school frame and an area frame was used to identify schools not included on the list frame and thereby compensate for the undercoverage of the list frame.

B. Sample Selection Procedures

Schools are the primary sampling unit in SASS. Public schools were selected to be representative at the national and state levels; private schools were selected to be representative at the national and association levels. More detail is available in Abramson, et al. (NCES 96-089).[3]

Once schools were selected, LEAs associated with these schools were in sample as well. Hence, the LEA sample consisted of the set of LEAs that were associated with the SASS public school sample. This provided the linkage between the LEA and the school.

Each selected school was asked to provide a list of their teachers and selected characteristics. Nine percent of the private schools and four percent of the public schools did not provide teacher lists. A factor in the teacher weighting system was used to adjust for these nonparticipant schools.

C. Sample Sizes

Tables III.1 and III.2 show the sample sizes and number of interview cases for each questionnaire, by state and private school typology, respectively. Table III.3 shows the sample size actually used in this report once the sample was limited to regular, full-time teachers.

The number in sample is the number of in-scope, or eligible cases. This number excludes the out-of-scope cases, which are drawn for the sample but are not eligible for interview. For example, a school which has closed or a teacher who has left the country would be considered out-of-scope.

The number of interviews is the number of in-scope (eligible) cases minus the noninterview cases. The noninterview cases include refusals or sample questionnaires

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[2] Broughman, S., Gerald, E., Bynum, L., and Stoner, K. *Private School Universe, 1991-92*, United States Department of Education, National Center for Education Statistics, NCES 94-350.

[3] Abramson, R., Cole, C., Jackson, B., and Kaufman, S. *1993-94 Schools and Staffing Survey: Sample Design and Estimation*, U.S. Department of Education, National Center for Education Statistics, NCES 96-089.

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with too little valid data to be considered complete interviews for the survey. The number of interviews is the actual unweighted number of cases upon which estimates in this report are based. A nonresponse adjustment is included in the weights to reduce the bias due to nonresponse.

Table III.1— Number of in–scope sample cases and number of interviews, public school districts, principals, and schools: 1993–94

	District		Public principals		Public school		Public teacher	
	# in sample	# in interviews	# in sample	# in interviews	# in sample	# in interviews	# in sample	# in interviews
50 States and DC	5,378	5,008	9,415	9,098	9,532	8,767	53,008	47,109
Alabama	104	97	234	232	234	224	1,308	1,172
Alaska	46	44	496	188	197	170	1,022	864
Arizona	94	92	203	194	206	190	1,229	1,101
Arkansas	123	120	164	162	164	156	955	863
California	264	223	401	380	406	352	2,578	2,124
Colorado	74	64	173	158	176	164	977	868
Connecticut	99	90	160	152	161	148	832	726
Delaware	19	17	71	70	71	63	309	268
District of Columbia	1	1	64	54	65	55	278	197
Florida	56	55	238	236	243	228	1,291	1,161
Georgia	97	95	179	177	179	168	924	845
Hawaii	1	1	92	88	93	85	713	616
Idaho	79	75	167	165	169	158	969	900
Illinois	185	163	253	246	254	238	1,284	1,125
Indiana	133	120	176	172	178	166	1,028	936
Iowa	127	115	165	163	163	158	975	906
Kansas	110	104	162	150	162	149	1,26	933
Kentucky	104	103	158	149	161	149	803	721
Louisiana	65	57	223	219	224	207	1,079	969
Maine	103	98	153	144	156	145	897	81
Maryland	23	19	162	154	167	135	730	646
Massachusetts	155	151	222	217	222	208	1,508	1,325
Michigan	187	178	208	201	214	202	1,034	933
Minnesota	121	103	167	163	172	160	977	910
Mississippi	116	113	204	200	207	195	1,098	988
Missouri	126	122	176	173	177	168	990	896
Montana	154	145	176	169	190	178	1,354	1,249
Nebraska	112	106	146	142	163	139	830	770
New Hampshire	76	72	120	120	121	117	582	521
New Jersey	151	113	191	185	192	167	1,012	858
New Mexico	60	59	171	164	173	160	863	771
New York	200	183	312	281	315	270	1,831	1,460
North Carolina	83	78	204	199	204	181	1,010	908
North Dakota	117	114	171	168	123	166	1,179	1,101

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Table III.1— Number of in–scope sample cases and number of interviews, public school districts, principals, and schools: 1993–94 (cont)

	District		*Public principals*		*Public school*		*Public teacher*	
	# in sample	# in interviews	# in sample	# in interviews	# in sample	# in interviews	# in sample	# in interviews
Ohio	155	155	188	182	189	176	999	895
Oklahoma	231	214	323	307	326	306	1,987	1,740
Oregon	107	103	173	170	173	159	1,016	909
Pennsylvania	157	142	182	175	189	169	939	830
Rhode Island	34	34	99	93	99	88	421	356
South Carolina	69	64	162	157	162	141	781	701
South Dakota	113	108	170	168	172	165	1,079	970
Tennessee	86	82	187	183	187	179	989	888
Texas	290	277	403	388	406	380	2,498	2,245
Utah	31	30	175	173	176	174	1,004	928
Vermont	89	88	103	97	105	97	489	423
Virginia	88	80	179	174	180	158	845	758
Washington	117	112	210	207	212	200	1,213	1,065
West Virginia	55	53	166	166	168	154	926	850
Wisconsin	126	114	174	173	176	164	1,014	930
Wyoming	48	44	136	134	136	131	826	748

Note: The number of in–scope cases in sample is the actual sample size achieved, less out-of-scope cases. Out-of-scope cases are drawn for the sample but not eligible for interview. Districts may have merged, schools closed, or there may not have been a permanent principal assigned a the time of the interview, for example. There are still other reasons for a case to be considered out-of-scope. In addition, five percent of in-scope public schools did not send in their teacher lists and thus could not be sampled.

Table III.2— Number of in–scope cases in sample and number of interviews, private schools, principals, and teachers: SASS 1993–94

Private school type	*Private school*		*Private Principal*		*Private teacher*	
	# in sample	# in interviews	# in sample	# in interviews	# in sample	# in interviews
All private schools	3,074	2,585	3,143	2,722	10,386	8,372
Catholic	921	818	1,023	831	3,680	3,061
Parochial	465	408	462	427	1,776	1,474
Diocesan	290	263	290	244	1,192	988
Private order	166	147	271	160	712	599
Other religious	1,419	1,151	1,394	1,236	4,404	3,483
Conservative Christian	325	248	322	274	929	667
Affiliated	708	574	702	631	2,239	1,790
Unaffiliated	386	329	370	331	1,236	1,026
Non-sectarian	734	616	726	655	2,302	1,828
Regular program	366	297	364	321	1,279	1,036
Special emphasis	182	150	176	160	582	436
Special education	186	169	186	174	441	356

Note: The number of in–scope cases in sample excludes out-of-scope, or ineligible, cases. Reasons for a school, principal or teacher to be out-of-scope include school closure, principal or teacher leaving the school. In addition, nine percent of in–scope public schools did not send in their teacher lists and thus could not be sampled.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1993–94 (School Questionnaire, Principal Questionnaire, and Teacher Questionnaire.

Table III.3— Number of regular, full–time teachers in sample: SASS 1993–94

	Public		*Private*	
Characteristic	Elementary	Secondary	Elementary	Secondary
TOTAL	14,467	21,653	3,193	1,415
Sex				
Male	2,532	10,411	44	771
Female	11,935	11,242	2,749	644
Race/ethnicity of teacher				
White, non–Hispanic	11,727	19,182	2,901	1,278
Black, non–Hispanic	859	1,136	108	29
Hispanic	840	635	93	70
Native American	589	384	73	32
Asian/Pacific Islander	452	316	18	6
Age				
Under 30	1,379	1,779	607	258
30–39	3,244	4,763	736	366
40–49	6,062	8,745	1,074	418
Over 49	3,782	6,366	776	373
Highest degree earned				
High school diploma	28	228	106	15
Associate degree	2	78	46	5
Bachelor's degree	8,492	10,929	2,255	700
Master's degree	5,252	9,212	680	635
Educational specialist or professional diploma	635	1,011	93	30
Doctorate or first professional degree	58	195	3	30
Years of teaching experience				
3 years or less	1,830	2,526	766	335
4–9 years	3,276	4,155	853	321
10–19 years	4,751	6,944	942	385
20 years or more	4,610	8,028	632	374
Community type				
Central city	3,790	4,688	1,278	605
Urban fringe	3,607	5,775	1,260	530
Small town/rural	7,070	11,190	655	280
School size				
Less than 150	787	7,702	1,081	191
150–499	6,521	4,497	1,822	614
500–749	4,355	3,578	227	262
750 or larger	2,804	11,876	63	348
Percent of students who are minorities				
Less than 20 percent	7,416	12,898	2,237	893
20 percent or more	7,051	8,755	956	522
Percent of students receiving free/reduced price lunch				
Less than 5 percent	1,528	4,261	2,466	1,203
5 to 19 percent	2,866	7,853	441	138
20 percent or more	10,073	9,539	306	74

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1993–94, Teacher Questionnaire.

IV. Data Collection Procedures

Data collection operations for the 1993–94 SASS took place during the 1993–94 school year. Table IV.1 depicts both the specific data collection activity and the time frame in which it occurred.

Table IV.1—Data collection time schedule

Activity	Date of activity
Introductory letters mailed to school districts	September 1993
Introductory letters and teacher listing sheets mailed to schools	October 1993
Census field representatives called school districts to obtain the name of a contact person to whom the Teacher Demand and Shortage questionnaire should be addressed	October 1993
Lists of teachers provided by schools	October–1993
First mailing of questionnaires to school districts and school principals	December 1993
First mailing of questionnaires to schools and to teachers	January–February 1994
Second mailing of questionnaires to districts and school principals	January 1994
Second mailing of questionnaires to schools and teachers	February - March 1994
Telephone follow-up of mail nonrespondents	March - June 1994

V. Response Rates

A. Survey Response Rates

The weighted response rates for each component of SASS are detailed in Tables V.1 and V.2. Table V.1 provides public response rates by state for districts, schools, administrators, and teachers. Table V.2 lists private response rates by private school typology for administrators, schools, and teachers. The response rate tables are useful as an indication of possible nonresponse bias.

The weighted response rates were derived by dividing the sum of the basic weights for the interview cases by the sum of the basic weights for the eligible cases. The basic

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weight for each sample case was assigned at the time of sampling and is the inverse of the probability of selection.

Teacher response rates refer to the percentage of teachers responding in schools that provided teacher lists for sampling. Nine percent of private schools and four percent of public schools did not send in teacher lists. The effective response rate is calculated by multiplying together the teacher list rate and the response rate:

Public teachers: .96 x .882 = .8467 x 100 = 84.7 percent effective response rate
Private teachers: .91 x .801 = .7289 x 100 = 72.9 percent effective response rate

Table V.1— Final weighted district, public school administrator, school and teacher response rates by state: 1993–94

State	Districts	Administrators	Schools	Teachers
50 states and DC	93.9%	96.6$	92.3%	88.2%
Alabama	93.4	99.6	95.0	89.6
Alaska	94.3	95.9	87.7	85.8
Arizona	98.7	95.2	91.9	89.9
California	90.7	94.2	88.2	81.9
Colorado	89.3	89.4	92.2	88.0
Connecticut	93.9	95.9	93.1	88.2
Delaware	89.5	98.5	88.2	85.9
District of Columbia	100.0	85.8	85.5	70.9
Florida	98.4	98.2	94.5	91.1
Georgia	97.8	99.5	93.9	91.7
Hawaii	100.0	95.7	92.1	85.7
Idaho	94.0	99.2	91.7	92.7
Indiana	91.0	97.9	93.7	91.3
Iowa	92.1	99.1	96.1	92.0
Kansas	93.5	93.5	92.8	90.7
Kentucky	99.4	94.7	92.1	90.4
Louisiana	88.7	97.6	90.1	90.6
Maine	964	93.3	91.9	90.2
Maryland	82.5	95.2	84.8	87.8
Massachusetts	97.4	99.4	94.2	87.3
Michigan	96.6	98.0	96.5	89.2
Minnesota	89.6	98.9	94.8	93.0
Mississippi	98.0	98.2	93.8	90.5
Missouri	97.9	97.9	95.3	91.7
Montana	93.9	95.6	92.4	91.6
Nebraska	96.9	96.2	89.0	92.2
Nevada	100.0	93.7	88.3	94.0
New Hampshire	86.7	100.0	97.6	89.8
New Jersey	76.9	96.3	87.1	85.7
New Mexico	94.2	94.8	94.5	87.2
New York	94.0	92.8	89.3	79.9
North Carolina	96.3	97.5	89.8	90.3
North Dakota	95.9	98.7	95.7	93.3
Ohio	100.0	96.1	92.8	88.7
Oklahoma	94.2	94.8	94.5	87.2
Oregon	98.0	97.0	93.0	90.0
Pennsylvania	90.3	96.3	88.5	88.2
Rhode Island	100.0	93.9	89.8	84.5

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Table V.1— Final weighted district, public school administrator, school and teacher response rates by state: 1993–94 (cont)

State	Districts	Administrators	Schools	Teachers
South Carolina	93.5	96.8	87.3	90.6
South Dakota	95.9	98.9	95.9	89.4
Tennessee	96.9	97.4	94.5	89.1
Texas	96.5	96.9	94.2	89.6
Utah	95.9	99.5	98.4	91.5
Vermont	99.1	94.1	93.3	86.2
Virginia	88.4	96.0	89.3	89.9
Washington	97.7	98.7	89.3	89.9
West Virginia	96.4	100.0	92.8	92.0
Wisconsin	91.0	99.4	93.9	92.5
Wyoming	85.2	98.1	94.7	91.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1993–94 (Teacher Demand and Shortage Questionnaire, Principal Questionnaire, School Questionnaire, and Teacher Questionnaire).

Table V.2— Final weighted response rates by private school type for private school administrators, schools and teachers: 1993–94

Private school type	Principals	Schools	Teachers
All private schools	87.6%	83.2%	80.2%
Catholic	92.4	88.8	83.2
Parochial	92.4	88.0	93.2
Diocesan	93.3	90.9	82.7
Private order	89.4	87.9	84.2
Other religious	82.7	77.5	75.0
Conservative Christian	82.7	77.5	75.0
Affiliated	81.9	76.5	75.4
Unaffiliated	83.69	79.5	80.5
Non-sectarian	89.7	86.1	81.6
Regular	90.6	86.4	82.7
Special emphasis	89.0	81.4	78.0
Special education	88.5	93.2	81.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1993–94 (Principal Questionnaire, School Questionnaire, and Teacher Questionnaire).

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B. Item Response Rates

The unweighted item response rates (i.e., the number of sample units responding to an item divided by the number of sample units that participated in the survey) for the SASS and the Library Survey ranged from 50 percent to 100 percent. Tables V.3 and V-4 provide a brief summary of the item response rates. The item response rates in these tables are unweighted, and do not reflect additional response loss due to respondents' refusal to participate in the survey.

Table V.3— Summary of unweighted item response rates by questionnaire

Survey	Range of item response rates	Percent of items with a response rate of 90 percent or more	Percent of item with a response rate of less than 75 percent
LEA survey	67–100%	91%	1%
Principal Survey			
Public	65–100%	92%	4%
Private	55–100%	90%	6%
Indian	72–100%	91%	1%
School Survey			
Public	83–100%	83%	0%
Private	61–100%	77%	3%
Indian	70–100%	84%	1%
Teacher survey			
Public	71–100%	91%	0%
Private	69–100%	89%	1%
Indian	70–100%	84%	3%
Student survey			
Public	90–100%	97%	0$
Private	84–00%	97%	0%
Indian	79–100%	88%	0%

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Table V.4— Items with response rates of less than 75 percent[4]

Survey	Items
LEA survey	26c(2)
Principal survey	
Public	14b(1,1), 14b(2,1), 14b(5,1), 14b(7,1), 14b(8,1)
Private	14b(1,1, 14b(2,1), 14b(4,1), 14b(5,1), 14b(8,1), 21a, 21c, 28b
School survey	
Public	None
Private	31c(2), 31c(5), 31c(6), 31c(7), 31c(8), 31c(9)
Teacher survey	
Public	41c
Private	39, 51c, 55

Tables V.5 through V.8 provide summaries of the unweighted item response rates for the items used in this report. All item response rates for the items used in this report are above 75 percent.

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[4] The questionnaire wording for these items can be found in *The Schools and Staffing Surveys: 1993–94, Data Files User's Manual*, NCES 93–94

Table V.5— Unweighted item response rates, District File

	Source code		Response rate (%)	
Item description	Public	Private	Public	Private
Number of FTE teachers				
All	D1010	S1010	94.9	93.3
Certified	D1015	S1015	94.9	91.7
Continuing	D1010 minus D1050	S1010 minus S1050	--	--
Continuing and certified	D1015 minus D1055	S1015 minus S1055	--	--
Newly hired	D1050	S1050	99.2	96.6
Newly hired and certified	D1055	S1055	98.6	93.3
Total FTE positions				
Vacant	D1030	S1030	99.0	95.8
Withdrawn	D1035	S1035	98.6	95.9
Teacher salary schedules by earned degree and experience				
Bachelor's and no experience	D2100	S2100	98.2	87.5
Master's and no experience	D2105	S2105	97.2	81.2
Master's and 30 credits	D2110	S2110	91.8	71.1
Master's and 20 years	D2115	S2115	95.8	76.2

*Only for districts or private schools with no scheduled salaries.

-- Item response rates are not applicable for computed variables.

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Table V.6— Unweighted item response rates, School File

		Response rate (%)	
Item description	Public and private item name	Public	Private
English as a second language			
Program	S1410	98.9	98.5
Students	S1415	94.0	94.6
Bilingual education			
Program	S1420	98.6	98.4
Students	S1425	93.0	93.5
Remedial reading			
Program	S1360	98.3	97.5
Students	S1365	88.8	88.1
Remedial mathematics			
Program	S1370	97.7	97.1
Students	S1375	88.6	87.7
Handicapped			
Program	S1380	98.4	97.7
Students	S1385	91.0	89.2
Gifted and talented			
Program	S1390	98.1	96.9
Students	S1395	90.4	85.5
Diagnostic and prescriptive services			
Services	S1430	98.2	98.1
Extended day/after–school			
Services	S1400	98.8	98.6
Students	S1405	88.0	90.8
Chapter 1			
Services	S1600	97.3	98.1
Students (pre–K)	S1605	99.6	99.8
Students (K and above)	S1610	83.2	89.2
Free or reduced-price lunch	(public only)*		
Services	S1645	98.1	98.2
Students (pre–K)	S1655	90.5	89.3
Students (K and above)	S1660	84.1	78.3
Schools with 12th grade students	S0245	99.2	98.4
Number of graduates last year	S1835	95.5	96.5
Number of graduates applied college	S1840	87.3	93.1

Table V.7— Unweighted item response rates, Principal File

	Source code		Response rate (%)	
Item description	Public	Private	Public	Private
Associate's degree	A160	A160	98.9	98.0
Bachelor's degree	A060	A060	99.9	99.9
Master's degree	A125	A125	99.9	99.4
Education specialist degree	A175	A175	99.0	98.0
Ph.D./first professional degree	A190	A190	99.0	98.0
Current annual salary	A495	A495	96.1	91.6
Months employed	A500	A500	99.3	98.4
Years employed:				
As a principal in this school	A325	A325	100.0	100.0
As a principal in other schools	A330	A330	99.2	98.4

Table V.8— Unweighted item response rates, Teacher File

	Source code		Response rate (%)	
Item description	Public	Private	Public	Private
Associate's degree	T0270	T0270	96.4	93.8
Bachelor's degree	T0170	T0170	99.7	99.6
Master's degree	T0235	T0235	98.9	98.6
Education specialist degree	T0285	T0285	96.4	93.8
Ph.D./first professional degree	T0300	T0300	96.4	93.8
Full-time experience (private schools)	T0095	T0095	94.5	92.7
Full-time experience (public schools)	T0105	T0105	94.9	95.2
Academic base year salary	T1420	T1420	91.6	90.3
School year supplement	T1425	T1425	97.8	96.4
Salary from school year supplement	T1430	T1430	96.0	94.5
Summer supplement	T1390	T1390	97.7	96.1
Salary from summer supplement	T1395	T1395	95.2	94.2

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VI. Imputation Procedures

For questionnaire items that should have been answered but were not, values were imputed by (1) using data from other items on the questionnaire, (2) extracting data from a related component of the Schools and Staffing Survey (for example, using data from a school record to impute missing values on that school's LEA questionnaire), (3) extracting data from the sample file (information about the sample case from other sources; for example, the Private School Survey or the Common Core of Data, collected in the 1991–92 school year), and (4) extracting data from a respondent with similar characteristics.

For some incomplete items, the entry from another part of the questionnaire or information from the sample file was directly imputed to complete the item; for others the entry was used as part of an adjustment factor with other data on the incomplete record. For example, if a respondent did not report whether a school offered remedial reading in item 22a of the public school questionnaire, the response (1 = Yes or 2 = No) for a similar school was imputed to item 22a of the incomplete record. However, if a respondent had answered "Yes" to item 22a but had not reported the number of students in the program, the ratio of number of students in remedial reading to the total enrollment for a similar school was used with the enrollment at the school for which item 22a was incomplete to impute an entry to item 22a (i.e., SCHOOL A item 22a = SCHOOL A ENROLLMENT multiplied by the ratio of SCHOOL B item 22a to SCHOOL B ENROLLMENT).

Values were imputed to items with missing data for records that had been classified as interviews (ISR=1). Noninterview adjustment factors were used during the data weighting process to compensate for data that were missing because the sample case was a noninterview (ISR=2). For more information about imputation procedures see Abramson, et al. (NCES 96-089).[5]

VII. Weighting[6]

Weighting of the sample units from the public sector was carried out to produce national and state estimates for public schools, teachers, principals, and LEAs. The private sector was weighted to produce national and association group estimates.

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[5] Abramson, R., Cole, C., Jackson, B., and Kaufman, S. *1993-94 Schools and Staffing Survey: Sample Design and Estimation*, U.S. Department of Education, National Center for Education Statistics, NCES 96-089.

[6] For a detailed description of the weighting processes see Abramson, R., Cole, C., Jackson, B., and Kaufman, S. *1993-94 Schools and Staffing Survey: Sample Design and Estimation*, U.S. Department of Education, National Center for Education Statistics, NCES 96-089.

VIII. Standard Errors

Estimates found in the tables of this report are based on samples and are subject to sampling variability. Standard errors were estimated using a balanced repeated replications procedure that incorporates the design features of the stratified, clustered sample. The standard errors provide indications of the accuracy of each estimate. If all possible samples of the same size were surveyed under the same conditions, an interval of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the universe value in approximately 95 percent of the cases. Note, however, that the standard errors do not take into account the effects of biases due to item nonresponse, measurement error, data processing error, or other systematic error. Estimates with large standard errors (coefficient of variation greater than 30 percent) should be interpreted with caution.

IX. Cautions Concerning Change Estimates

Care must be taken in estimating change over time in a SASS data element, because some of the measured change (e.g. a 8 percent increase in the number of students receiving Chapter 1 services) may not be attributable to a change in the education system. Some of the change may be due to changes in the sampling frame, to a questionnaire item wording, or other changes detailed in Abramson, et al. (NCES 96-089).[7]

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[7] Abramson, R., Cole, C., Jackson, B., and Kaufman, S. *1993-94 Schools and Staffing Survey: Sample Design and Estimation*, U.S. Department of Education, National Center for Education Statistics, NCES 96-089.

X. Definitions

The following survey terms are defined as they apply to SASS.

Local Education Agency (LEA). An LEA, or public school district, is defined as a government agency that employs elementary or secondary level teachers and is administratively responsible for providing public elementary and/or secondary instruction and educational support services.

Districts that do not operate schools but employ teachers, are included. For example, some states have special education cooperatives that employ special education teachers who teach in schools in more than one school district.

Public School. A public school is defined as an institution that provides educational services for at least one of grades 1–12 (or comparable ungraded levels), has one or more teachers to give instruction, is located in one or more buildings, receives public funds as primary support, and is operated by an education agency. Schools in juvenile detention centers and schools located on military bases and operated by the Department of Defense are included.

Private School. A private school is defined as a school not in the public system that provides instruction for any of grades 1–12 (or comparable ungraded levels). The instruction must be given in a building that is not used primarily as a private home.

Teacher. A teacher is defined as a full-time or part-time teacher who teaches any regularly scheduled classes in any of grades K–12. This includes administrators, librarians, and other professional or support staff who teach regularly scheduled classes on a part-time basis.[8] Itinerant teachers are included, as well as long–term substitutes who are filling the role of a regular teacher on a long-term basis. An itinerant teacher is defined as a teacher who teaches at more than one school (for example, a music teacher who teaches three days per week at one school and two days per week at another). Short-term substitute teachers and student teachers are not included.

Special Education School. Special education schools focus primarily on direct instructional activities required to educate students with mental handicaps, such as mental retardation; physical handicaps, such as hearing- and speech-impairment, and learning disabilities, such as dyslexia.

Typology. Categories (three major with three sub-categories each) into which private schools are divided: 1) Catholic—parochial, diocesan, private; 2) Other religious—affiliated with a Conservative Christian school association, affiliated with a national denomination, unaffiliated; 3) Non-sectarian—regular, special program emphasis, special education.[9]

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[8] This represents a change in the definition of teacher from previous administrations of SASS. In 1987-88 and 1990-91 a teacher was defined as any full-time or part-time teacher whose *primary assignment* was teaching in any of grades K-12. The prior definition excluded administrators and other staff who taught regularly scheduled classes, but whose primary assignment was not teaching.

Among Catholic schools, the governance categories (Parochial, Diocesan, Private) are strongly tied to differences in curriculum, student population characteristics, program emphasis, and sources of revenue (Yeager, Benson, Guerra, and Manno, 1985).

In the case of other religious schools, recent work (Carper and Hunt, 1984) documents major differences in decision making, educational goals, revenue, and enrollment trends between denomination schools (i.e., Lutheran, Jewish, Seventh-day Adventist) and those non-denominational schools affiliated with a Conservative Christian school association (e.g., Accelerated Christian Education, American Association of Christian Schools, Association of Christian Schools International, Oral Roberts Educational Fellowship). This category is reportedly the fastest growing private school sector. Schools in this type are commonly known as evangelical or fundamental, and are not tied to a denomination per se, but rather are governed by a single church, a foundation, or a local society. A third Other Religious category, Unaffiliated, is suggested to capture those religious schools which affiliate with neither a national denomination nor with a conservative Christian school association.

The three non-sectarian school categories are determined not by governance but by program emphasis. This classification disentangles private schools offering a conventional academic program (Regular) from those which either serve special needs children (Special Education) or provide a program with a Special Emphasis (e.g., arts, vocational, alternative).

Common Core of Data. The Common Core of Data is a group of surveys that acquire and maintain public elementary and secondary education data from the 50 states, the District of Columbia, and the outlying areas through the state-level (or equivalent) education agencies. Information about staff and students in public schools is collected annually at the school, LEA (local education agency or school district), and state levels. Information about revenues and expenditures is also collected at the state level.

Newly hired teachers. Newly hired teachers are teachers who were newly hired by the school district for the 1993–94 school year. It includes teachers returning from unpaid leave of absence of one school year or more, but does not include substitute teachers.

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[9] McMillen, M., and Benson, P. *Diversity in Private Schools*, U.S. Department of Education, National Center for Education Statistics, NCES 92-082.

Technical Note on Specific Items

Teachers responded to the following items regarding their perceptions and attitudes toward teaching. The items were answered on a 4 point scale which, for the most part, was coded so that 1 meant they strongly disagreed and 4 meant they strongly agreed. Some items, however, were worded in a negative way, so strongly agreeing was a negative response. In other words, strongly agreeing that student misbehavior interferes with teaching is a negative response, while strongly agreeing that the administration is supportive and encouraging is not. All items were coded so that 1 was the most negative response and 4 was the most positive response. The nine items in **bold** were analyzed in this report.

1. Teachers in this school are evaluated fairly.
2. The principal lets staff members know what is expected of them.
3. The school administration's behavior toward the staff is supportive and encouraging.
4. I am satisfied with my teaching salary.
5. The level of student misbehavior (e.g., noise, horseplay or fighting in the halls, cafeteria or student lounge) in this school interferes with my teaching.
6. Teachers participate in making most of the important educational decisions in this school.
7. I receive a great deal of support from parents for the work I do.
8. Necessary materials (e.g., textbooks, supplies, copy machine) are available as needed by the staff.
9. The principal does a poor job of getting resources for this school.
10. Routine duties and paperwork interfere with my job of teaching.
11. My principal enforces school rules for student conduct and backs me up when I need it.
12. The principal talks with me frequently about my instructional practices.
13. Rules for student behavior are consistently enforced by teachers in this school, even for students who are not in their classes.
14. Most of my colleagues share my beliefs and values about what the central mission of the school should be.

15. The principal knows what kind of school he/she wants and has communicated it to the staff.
16. There is a great deal of cooperative effort among the staff members.
17. In this school, staff members are recognized for a job well done.
18. I have to follow rules in this school that conflict with my best professional judgment.
19. I am satisfied with my class sizes.
20. I make a conscientious effort to coordinate the content of my courses with that of other teachers.
21. Goals and priorities for the school are clear.
22. The amount of student tardiness and class cutting in this school interferes with my teaching.
23. I sometimes feel it is a waste of my time to try to do my best as a teacher.
24. I plan with the library media specialist/librarian for the integration of library/media services into my teaching.
25. Library/media materials are adequate to support my instructional objectives.

For two items, teachers responded to the questions "To what extent is each of the following matters a problem in this school?" They responded by marking either, "serious," "moderate," minor," or "not a problem." Teacher who responded with either "serious" or "moderate" were coded as indicating the matter was a problem. The two items were

1. Student absenteeism
2. Student apathy

Technical Note on the Creation of Variables

Two variables on teacher autonomy were derived from existing questions. Factor analysis (with varimax rotation method) was used to develop the two indices: the autonomy of individual teachers in their classrooms and the collective influence of the teaching staff over school-wide policies. Item loadings of .4 were considered necessary for inclusion in a factor. No items loaded on more than one factor. Each factor had high internal consistency (a > .7).

The variable on decision-making control in the classroom was derived from the mean of teachers' reports control in their classrooms over 6 areas of planning and teaching: course texts, course content, teaching techniques, evaluating students, disciplining students, and determining homework. Each item was answered on a scale of 1 = no control to 6 = complete control. The variable was converted into a dichotomous variable using 4 as the cutoff point. In other words, teachers whose mean scores were 4 or higher were categorized as agreeing that they had control over their classroom, while those who scored less than 4 disagreed.

The variable on influence over school policy was derived from the mean of teachers' reports of influence over school policy in 4 areas: discipline, faculty in-service programs, grouping students in classes by ability, and establishing curriculum. Each item was answered on a scale of 1 = no influence to 6 = a great deal of influence. The variable was converted into a dichotomous variable using 4 as the cutoff point. In other words, teachers whose mean scores were 4 or higher were categorized as agreeing that they had control over their classroom, while those who scored less than 4 disagreed.

Technical Note on Item Response Theory

This analysis required the creation of a scale of teacher satisfaction with teaching as a career. The scale was built on three questions from the teacher questionnaire, listed below, and derived using Item Response Theory (IRT). IRT allows us to determine the correlation between individual items and a latent trait that cannot be measured directly, in this case satisfaction. In IRT, the latent trait is denoted by θ. IRT allows us to appropriately weight each item based on its correlation with θ and to create a continuous scale that represents teachers' satisfaction with teaching as a career. As a result, composite IRT-based satisfaction scores with their appropriate standard errors are calculated for each teacher.

IRT was chosen to create the scale primarily because it allowed us to weight the individual items appropriately. In other words, when one of the items was more closely linked to teacher satisfaction, IRT gave that item more weight when creating the satisfaction scale. Combining the items linearly, either by adding their responses or taking an average, would not have allowed us to give one item a greater weight over another. In addition, IRT calculates an exact error term for each score on the satisfaction scale. The estimated error from a linear combination is more time consuming to calculate and less reliable.

The teacher satisfaction scale was created using Parscale and the Graded Response Model. Also, the scoring for this analysis incorporated the Bayesian assumption of a normal distribution of satisfaction - it was performed using Estimated A Priori (EAP) estimation, rather than Maximum Likelihood Estimation (MLE). This is important in estimating satisfaction at the very top and bottom of the range. In MLE, scores at the extremes are arbitrarily set, since they cannot be estimated. In EAP, a distribution is imposed on the results, so that scores at the estimates can be estimated. In this case, the mean was set at 0 and the standard deviation at 1.

Item characteristic curves for the response options were created for each item. It is important to remember that the q in each of the curves is the same. In essence, q is the composite dimension B the "factor' that best explains the pattern of responses of the teachers to these three items. q is interpreted by looking at which items best differentiate between high and low levels of q. It is our belief that q represents satisfaction with teaching as a career.

For item T1305 ("I sometimes feel it is a waste of time to try to do my best as a teacher"), we should bear in mind that the response options will be in the opposite order than the other items B that is, strongly disagreeing will be expected to indicate higher "satisfaction." This item has the problem that overall very few teachers (7%) responded that they strongly agreed with the statement. Consequently, we have little data for the very low levels of q. This item is the least strong of the three in distinguishing among teachers at different levels of q, because overall more than half (54%) of the teachers endorsed the same option B strongly disagree, and the other three response alternatives are not particularly related to q.

The parameter estimates for item T1305 from this analysis are:
a = 0.660, b = -1.449, c = (1.895, 0.768, 0.206)

Item T1320 ("If you could go back to your college days and start over again, would you become a teacher or not?") is the strongest item in this analysis. Note that one response option B "Certainly would not become a teacher" B was not endorsed by anyone in this sample, and so does not appear on the plot. On this item, 39% of teachers overall selected "Certainly would become a teacher," but in this analysis, selection of this response almost certainly means that the teacher is above average on **θ**. If our goal were to dichotomize the teachers into "satisfied"/"dissatisfied," this would be a good item to use. The other response alternatives are also fairly related to **θ**. In our IRT reasoning, we would say not only that this item is best at predicting **θ**, but that **θ** is most related to this item B we would look most closely at this item to determine how to interpret **θ**.

The parameter estimates for item T1320 from this analysis are:
a = 1.259, b = -0.868, c = (2.668, 1.474, 0.654,-0.424)

Finally, Item T1370 ("How long do you plan to remain in teaching?") is probably the most interesting. Here, endorsement of "As long as I am able" corresponds well with a high level of **θ**. "Until I am eligible for retirement" receives between 10 percent and 30 percent endorsement across the span from 3 standard deviations below the mean of **θ** to 3 standard deviations above. Especially in the middle—where most of the teachers are (one of the assumptions of this analysis is that the teachers are roughly normally distributed on **θ**) B the probability is very uniform. Likely something else beside **θ** predicts endorsement of that alternative. "Undecided" responses were treated as missing in this analysis.

The parameter estimates for item T1370 from this analysis are:
a = 0.854, b = -1.223, c = (2.181, 1.191, -0.240)

Next, the scale was created and each teacher received an individual composite score. In addition to the composite score, the standard error for that score was merged onto each teacher's record in the original dataset.

We then examined the "information curve," which is inversely related to the square of the standard error of a measurement at that level of θ; it suggested where across θ we would be able to most accurately measure an individual teacher's "satisfaction." In other words, higher information means more precise measurement. In this case, we found that these items would be best at distinguishing those above average on q from those below average. In other words, these items do not distinguish slight changes in satisfaction, only large differences in satisfaction levels between teachers.

Finally, we plotted the frequency distribution of the satisfaction composite score. An examination of the response patterns and corresponding scores in the table indicated that, while, as we would expect, the very lowest possible score is assigned to those who answer negatively to all four items and the very highest score to those who answer positively, in between these extremes it is possible to obtain very similar scores through very different combinations of item responses.

In all, there are 100 possible patterns of responses (including coding "undecided" on item T1370 as missing). All 100 of these possible patterns occur in this dataset. As would be expected, some are very common B for example, 7540 teachers endorsed the most positive pattern (4,1,1) B while others were endorsed by only a single teacher. The following table lists the response patterns and corresponding scores and standard errors. An examination of the ordering of these patterns in relation to the composite scores assigned by the above analysis indicates that, as predicted, item T1320 had the greatest impact on the scoring.

Teacher Satisfaction Study Composite Scores

SATSCORE	T1305	T1320	T1370	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-2.9858	1	5	4	227	0.5	227	0.5
-2.5941	2	5	4	197	0.4	424	0.9
-2.5045	1	5	3	109	0.2	533	1.1
-2.4947	1	5	5	102	0.2	635	1.3
-2.2962	3	5	4	56	0.1	691	1.4
-2.2154	1	4	4	136	0.3	827	1.7
-2.1892	2	5	3	130	0.3	957	1.9
-2.0805	4	5	4	94	0.2	1051	2.1
-2.0632	2	5	5	136	0.3	1187	2.4
-2.0588	1	5	2	237	0.5	1424	2.9
-1.9439	2	4	4	290	0.6	1714	3.5
-1.9165	3	5	3	68	0.1	1782	3.6
-1.9007	1	4	3	168	0.3	1950	4.0
-1.7457	2	5	2	322	0.7	2272	4.6
-1.7136	1	4	5	188	0.4	2460	5.0
-1.6972	1	3	4	45	0.1	2505	5.1
-1.6957	3	4	4	104	0.2	2609	5.3
-1.6890	3	5	5	71	0.1	2680	5.5
-1.6862	4	5	3	92	0.2	2772	5.6
-1.6804	2	4	3	435	0.9	3207	6.5

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Teacher Satisfaction Study Composite Scores (cont)

SATSCORE	T1305	T1320	T1370	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-1.6586	1	5	1	37	0.1	3244	6.6
-1.5080	1	4	2	256	0.5	3500	7.1
-1.4703	4	4	4	154	0.3	3654	7.4
-1.4593	3	4	3	266	0.5	3920	8.0
-1.4547	2	3	4	124	0.3	4044	8.2
-1.4513	3	5	2	135	0.3	4179	8.5
-1.4449	2	4	5	488	1.0	4667	9.5
-1.4333	1	3	3	104	0.2	4771	9.7
-1.3157	2	5	1	73	0.1	4844	9.9
-1.3089	4	5	5	148	0.3	4992	10.2
-1.3043	2	4	2	789	1.6	5781	11.8
-1.2661	1	2	4	30	0.1	5811	11.8
-1.2464	2	3	3	476	1.0	6287	12.8
-1.2339	4	4	3	351	0.7	6638	13.5
-1.2192	3	3	4	61	0.1	6699	13.6
-1.1674	3	4	5	317	0.6	7016	14.3
-1.1477	4	5	2	249	0.5	7265	14.8
-1.1393	1	3	5	152	0.3	7417	15.1
-1.1164	1	4	1	98	0.2	7515	15.3
-1.0825	3	4	2	491	1.0	8006	16.3
-1.0509	1	3	2	150	0.3	8156	16.6
-1.0454	3	3	3	389	0.8	8545	17.4
-1.0239	2	2	4	68	0.1	8613	17.5
-1.0182	1	2	3	76	0.2	8689	17.7
-0.9721	3	5	1	43	0.1	8732	17.8
-0.9667	4	3	4	99	0.2	8831	18.0
-0.9363	2	3	5	639	1.3	9470	19.3
-0.9049	2	4	1	242	0.5	9712	19.8
-0.8963	2	3	2	784	1.6	10496	21.4
-0.8374	2	2	3	392	0.8	10888	22.2
-0.8207	4	4	5	530	1.1	11418	23.3
-0.8108	4	4	2	726	1.5	12144	24.7
-0.8049	4	3	3	534	1.1	12678	25.8
-0.7787	1	1	4	18	0.0	12696	25.9
-0.7777	3	2	4	58	0.1	12754	26.0
-0.7136	3	3	2	642	1.3	13396	27.3
-0.7086	3	3	5	553	1.1	13949	28.4
-0.6575	3	4	1	182	0.4	14131	28.8
-0.6465	1	3	1	81	0.2	14212	28.9
-0.6329	3	2	3	373	0.8	14585	29.7
-0.6094	1	2	2	158	0.3	14743	30.0
-0.5930	1	2	5	130	0.3	14873	30.3
-0.5319	1	1	3	38	0.1	14911	30.4
-0.5202	4	5	1	117	0.2	15028	30.6
-0.5189	2	1	4	32	0.1	15060	30.7
-0.5007	2	3	1	337	0.7	15397	31.4
-0.4765	2	2	2	916	1.9	16313	33.2
-0.4646	4	2	4	114	0.2	16427	33.5
-0.4517	4	3	2	994	2.0	17421	35.5
-0.4229	2	2	5	675	1.4	18096	36.9
-0.3694	4	3	5	897	1.8	18993	38.7

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Teacher Satisfaction Study Composite Scores (cont)

SATSCORE	T1305	T1320	T1370	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-0.3427	4	2	3	732	1.5	19725	40.2
-0.3403	2	1	3	135	0.3	19860	40.4
-0.3126	3	3	1	325	0.7	20185	41.1
-0.3093	3	2	2	963	2.0	21148	43.1
-0.2669	4	4	1	394	0.8	21542	43.9
-0.2378	3	1	4	29	0.1	21571	43.9
-0.2190	3	2	5	620	1.3	22191	45.2
-0.1488	1	2	1	126	0.3	22317	45.5
-0.1082	3	1	3	153	0.3	22470	45.8
-0.0535	1	1	2	173	0.4	22643	46.1
-0.0396	2	2	1	631	1.3	23274	47.4
-0.0244	4	2	2	2130	4.3	25404	51.7
0.0397	4	3	1	742	1.5	26146	53.3
0.0727	2	1	2	635	1.3	26781	54.5
0.1129	3	2	1	758	1.5	27539	56.1
0.1494	4	2	5	1557	3.2	29096	59.3
0.1845	1	1	5	124	0.3	29220	59.5
0.2455	3	1	2	740	1.5	29960	61.0
0.2486	4	1	4	88	0.2	30048	61.2
0.3363	2	1	5	427	0.9	30475	62.1
0.3439	4	1	3	483	1.0	30958	63.1
0.4599	4	2	1	2299	4.7	33257	67.7
0.5397	3	1	5	464	0.9	33721	68.7
0.6198	1	1	1	260	0.5	33981	69.2
0.6654	4	1	2	3305	6.7	37286	75.9
0.7098	2	1	1	901	1.8	38187	77.8
0.8516	3	1	1	1201	2.4	39388	80.2
1.1435	4	1	5	2171	4.4	41559	84.6
1.4001	4	1	1	7540	15.4	49099	100.0

Technical Note on the Formulae Used to Calculate Table 16

Formula 1:

$$r^2_{Y12} = 1 - \frac{SSE(X_1,X_2)}{SSE(X_2)}$$

where r^2_{Y12} is the proportionate reduction in the variation of Y (dependent variable) remaining after X_2 is included in the model, and

$SSE(X_1,X_2)$ is the variation in Y when both X_1 and X_2 (independent variables) are included in the model, and

$SSE(X_2)$ is the variation in Y when X_2 is included in the model.

Formula 2:

$$F = \frac{SSE(R) - SSE(F)}{df_R - df_F} \div \frac{SSE(F)}{df_F}$$

where F is the F ratio (Large values of F lead to H_a, and

SSE(F) is the error sum of squares for the full model, and

SSE(R) is the error sum of squares for the reduced model, and

df_F is the degrees of freedom for the full model, and

df_R is the degrees of freedom for the reduced model.

Appendix D

Schools and Staffing Survey (SASS) Data Products

Schools and Staffing Survey (SASS) Data Products

The following SASS data products may be obtained free of charge while supplies last from:

U.S. Department of Education
National Center for Education Statistics
SASS Data Products
555 New Jersey Avenue, NW, Room 422
Washington, DC 20208-5651

Reports

The Effects of Professionalization on Teachers: A Multi-Level Analysis, 1990–91 (NCES 97–069)

The State of Teaching as a Profession, 1990–91 (NCES 97–104)

Time Spent Teaching Core Academic Subjects in Elementary Schools: Comparisons Across Community School, Teacher, and Student Characteristics (NCES 97–293)

Student Records Questionnaire: School Year 1993–94, With Special Emphasis on American Indians and Alaska Native Students (E.D. Tab, NCES 97–449)

Characteristics of Stayers, Movers, and Leavers: Results from the Teacher Followup Survey, 1994–95 (E.D. Tab, NCES 97–450)

Characteristics of American Indian and Alaska Native Education, Results from the 1993–94 DSDD (NCES 97–451)

Public and Private School Principals In The United States: A Statistical Profile, 1987–88 to 1993–94 (NCES 97–455)

A Profile of Administration Policies and Practices for Limited English Proficiency Students: Screening Methods, Teacher Training, and Program Support, 1993–94 (NCES 97–472)

The Schools and Staffing Survey Recommendation for the Future (NCES 97–596)

Out-of-Field Teaching and Educational Equality (NCES 96–040)

Schools and Staffing in the United States: A Statistical Profile: 1993–94 (NCES 96–124)

Private School Universe Survey, 1993–94 (NCES 96–143)

SASS by State, 1993–94 Schools and Staffing Survey: Selected State Results (NCES 96–312)

Comparing Key Organizational Qualities of American Public and Private Secondary Schools (NCES 96–322)

Schools and Staffing in the United States: Selected Data for Public and Private Schools, 1993-94 (E.D. Tab, NCES 95–191)

Private Schools in the United States: A Statistical Profile, 1990–91 (NCES 95–330)

Teacher Supply in the U.S.: Sources of Newly Hired Teachers in Public and Private Schools, 1988–1991 (NCES 95–348)

Characteristics of American Indian and Alaska Native Education, Results from the 1990–91 SASS (NCES 95–735)

Teacher Supply, Teacher Qualifications and Teacher Turnover, Aspects of Teacher Supply and Demand in the U.S., 1990–91 (NCES 95–744)

The Patterns of Teacher Compensation (NCES 95–829)

Characteristics of Stayers, Movers, and Leavers: Results from the Teacher Followup Survey, 1991–92 (E.D. Tab, NCES 94–337)

SASS by State (NCES 94–343)

Private School Universe Survey, 1991–92 (NCES 94-350)

Qualifications of the Public School Teacher Workforce: 1988 and 1991 (NCES 94–665)

Reports (cont)

America s Teachers: Profile of a Profession (NCES 93–025)

Private School Universe Survey, 1989-90 (NCES 93–122)

Selected Tables on Teacher Supply and Demand (E.D. Tab, NCES 93–141)

Schools and Staffing in the United States: A Statistical Profile, 1990–91 (NCES 93-146)

Schools and Staffing in the United States: Selected Data for Public and Private Schools, 1990–91 (E.D. Tab, NCES 93–453)

Schools and Staffing in the United States: A Statistical Profile, 1987–88 (NCES 92-120)

Characteristics of Stayers, Movers, and Leavers: Results from the Teacher Followup Survey, 1988–89 (E.D. Tab, NCES 91–128)

Forthcoming Reports

America's Teachers: Profile of a Profession, 1993–94

Job Satisfaction Among America's Teachers: Effects of Workplace, Conditions, Background Characteristics, and Teacher Compensation, 1993–94

Private Schools in the U.S.: A Statistical Profile, 1993–94

Sources of Newly Hired Teachers in Public and Private Schools, 1988–94

Issue Briefs

Schools Serving Family Needs: Extended-Day Programs in Public and Private Schools (Issue Brief, NCES 97–590)

Programs for Aspiring Principals: Who Participates? (Issue Brief, NCES 97–591)

Credentials and Tests in Teacher Hiring: What Do Districts Require? (Issue Brief, NCES 97–592)

Are Limited English Proficient (LEP) Students Being Taught by Teachers with LEP Training? (Issue Brief, NCES 97–907)

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Issue Briefs (cont)

How Widespread is Site-Based Decisionmaking in Public Schools? (Issue Brief, NCES 97–908)

Public School Choice Programs, 1993–94: Availability and Student Participation (Issue Brief, NCES 97–909)

Teachers' Sense of Community: How Do Public and Private Schools Compare? (Issue Brief, NCES 97–910)

Are High School Teachers Teaching Core Subjects Without College Majors or Minors in Those Subjects? (Issue Brief, NCES 96–839)

Where Do Minority Principals Work? (Issue Brief, NCES 96–840)

What Academic Programs are Offered Most Frequently in Schools Serving American Indian and Alaska Native Students? (Issue Brief, NCES 96–841)

How Safe are the Public Schools: What Do Teachers Say? (Issue Brief, NCES 96–842)

Extended Day Programs in Elementary and Combined Schools (Issue Brief, NCES 96–843)

What Criteria are Used in Considering Teacher Applicants? (Issue Brief, NCES 96–844)

Private School Graduation Requirements (Issue Brief, NCES 95–145)

How Much Time Do Public and Private School Teachers Spend in Their Work? (Issue Brief, NCES 95–709)

Migration and Attrition of Public and Private School Teachers: 1991–92 (Issue Brief, NCES 95–770)

Which Types of Schools Have the Highest Teacher Turnover? (Issue Brief, NCES 95–778)

Libraries/Media Centers in Schools: Are There Sufficient Resources? (Issue Brief, NCES 95–779)

Who Influences Decisionmaking About School Curriculum: What Do Principals Say? (Issue Brief, NCES 95–780)

Issue Briefs (cont)

Public and Private School Principals: Are There Too Few Women? (Issue Brief, NCES 94–192)

Sources of Newly Hired Teachers in Public and Private Schools, 1988–91 (Issue Brief, NCES 94–481)

What are the Most Serious Problems in Schools? (Issue Brief, NCES 93–149)

Teacher Salaries—Are They Competitive? (Issue Brief, NCES 93–450)

Teaching and Administrative Work Experience of Public School Principals (Issue Brief, NCES 93–452)

Teacher Attrition and Migration (Issue Brief, NCES 92–148)

Video

Americas Teachers: Profile of a Profession

Methods

1993-94 Schools and Staffing Survey: Sample Design and Estimation (Technical Report, NCES 96–089)

An Exploratory Analysis of Nonrespondents in the 1990–91 Schools and Staffing Survey (NCES 96–338)

Design Effects and Generalized Variance Functions for the 1990–91 Schools and Staffing Surveys (SASS) Volume I--User's Manual (NCES 95–342I)

Design Effects and Generalized Variance Functions for the 1990–91 Schools and Staffing Surveys (SASS) Volume II--Technical Report (NCES 95–340II)

Quality Profile for SASS: Aspects of the Quality of Data in the Schools and Staffing Surveys (Technical Report, NCES 94–340)

1990–91 Schools and Staffing Survey: Sample Design and Estimation (Technical Report, NCES 93–449)

Modeling Teacher Supply and Demand, with Commentary (Research and Development Report, NCES 93–461)

Methods

1987–88 Schools and Staffing Survey: Sample Design and Estimation (Technical Report, NCES 91–127)

CD-ROMs

Schools and Staffing Survey: 1993–94 Electronic Codebook and Public Use Data

Schools and Staffing Survey: 1990–91 Electronic Codebook and Public Use Data

Schools and Staffing Survey, 1987–88 Microdata and Documentation

Questionnaires

SASS and PSS Questionnaires 1993–1994 (NCES 94–674)

SASS and TFS Questionnaires 1990–1991

SASS and TFS Questionnaires 1987–1988

User s Manuals

1993–94 Schools and Staffing Survey, Data File User's Manual Volume I: Survey Documentation (NCES 96–142)

1993–94 Schools and Staffing Survey, Data File User's Manual Volume II: Restricted-Use Codebook (NCES 96–142–II)

1990–91 Schools and Staffing Survey: Data File User s Manual Volume I: Survey Documentation (NCES 93–144–I)

1990–91 Schools and Staffing Survey: Data File User s Manual Volume II: Restricted-Use codebook (NCES 93–144–II)

1990–91 Schools and Staffing Survey: Data File User s Manual Volume III: Public-Use codebook (NCES 93–144–III)

1990–91 Schools and Staffing Survey: Data File User s Manual Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebooks: Administrator, Schools, and Teachers (NCES 93–144–IV)

User s Manuals

1991–92 Teacher Followup Survey Data File User s Manual—Public-Use Version (NCES 94–331)

1991–92 Teacher Followup Survey Data File User s Manual—Restricted-Use Version (NCES 94–478)

1988–89 Teacher Followup Survey Data File User s Manual—Public-Use Version (NCES 92–058)

Forthcoming User's Manuals

1993–94 Schools and Staffing Survey, Data File User's Manual Volume III: Public-Use Codebook

1993–94 Schools and Staffing Survey, Data File User s Manual Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebooks: Administrator, Schools, and Teachers

1993–94 Schools and Staffing Survey, Data File User's Manual Volume V: Restricted-Use Codebook Students' Records

Conference Papers

Using Classroom Instructional Process Items in National Center for Education Statistics Study To Measure Student Opportunity to Learn: A Progress Report

Heaven or Hell? The Teaching Environment of Beginning Teachers

Using Opportunity to Learn Items in Elementary and Secondary National Surveys

Characteristics of Public and Private School Teachers

Characteristics of Mathematics and Science Teachers

Teacher Training, Certification and Assignment

Teacher Turnover: Patterns of Entry To and Exit from Teaching

Moonlighting Among Public and Private School Teachers

Characteristics of Bilingual Education and English as a Second Language Teachers

Conference Papers (cont)

Highlights of Minority Data from the Schools and Staffing Survey

Teacher Incentive Research with SASS

Teacher Salaries: Comparing States After Adjusting for Teacher Experience and Education

What are the Characteristics of Principals Identified as Effective by Teachers
Schools at Risk: Results of the 1987–88 Schools and Staffing Survey

Destinations of Movers and Leavers: Where Do They Go?

Teacher Salaries: Comparing States After Adjusting for Teacher Experience and Education

Classroom Environment and Support of Beginning Teachers: A Test of the "Crucible versus Cradle" Theory of Teacher Induction

Why do Teachers Leave Teaching? Reasons for Teacher Attrition from the Teacher Followup Survey

NCES Working Papers Related to SASS

WP 94-01 Schools and Staffing Survey (SASS). Papers Presented at the Meetings of the American Statistical Association

Section on Survey Research Methods, August 1992

a. "The Schools and Staffing Survey: Research Issues"
b. "The Schools and Staffing Survey: How Reinterview Measures Data Quality"
c. "Mail Versus Telephone Response in the 1991 Schools and Staffing Surveys"
d. "Questionnaire Research in the Schools and Staffing Survey: A Cognitive Approach"
e. "Balance Half-Sample Replication with Aggregation Units"
f. "Characteristics of Nonrespondents in the Schools and Staffing Surveys' School Sample"
g. "Improving Reliability and Comparability on NCES Data on Teachers and Other Education Staff"

NCES Working Papers Related to SASS (cont)

Establishment Surveys Conference, June 1993

a. "Sampling Frames at the United States National Center for Education Statistics"
b. "Monitoring Data Quality in Education Surveys"

Section on Survey Research Methods, August 1993

a. "Generalization Variance Functions for the Schools and Staffing Surveys"
b. "A Bootstrap Variance Estimator for the Schools and Staffing Survey"
c. "Adjusting for Nonresponse Bias of Correlated Items Using Logistic Regression"
d. "Comparisons of School Locale Setting: Self-Reported Versus Assigned"
e. "Characteristics of Nonrespondents to the 1990–91 Schools and Staffing Survey"

Social Statistics Section, August 1993

a. "Implicit Markets for Teacher Quality and School Attributes"
b. "Who Decides? Principals' and Teachers' Views on Decision-Making"
c. "Determinants of Pupil-Teacher Ratios at School Sites: Evidence from the Schools and Staffing Survey"

WP 94-02	Generalized Variance Estimates for Schools and Staffing Survey (SASS)
WP 94-03	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report
WP 94-04	The Accuracy of Teachers' Self-report on Their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey

NCES Working Papers Related to SASS (cont)

WP 94-06 Six Papers on Teachers from the 1990–91 Schools and Staffing Survey and Other Related Surveys

a. "The Results of the 1993 Teacher List Validation Study (TLVS)"
b. "Designing the Teacher Follow-up Survey (TFS): Issues and Content)"
c. "Understanding the Supply of Elementary and Secondary Teachers: The Role of the School and Staffing Survey and the Teacher Followup Survey"
d. "Teacher Retention/Attrition: Issues for Research"
e. "Reflections on a SASS Longitudinal Study"
f. "Whither Didst Thou Go? Retention, Reassignment, Migration, and Attrition of Special and General Education Teachers in National Perspective"

WP 95-01 Schools and Staffing Survey: 1994. Papers Presented at the 1994 Meeting of the American Statistical Association (95-01)

Estimation Issues in School Surveys

a. "Intersurvey Consistency in School Surveys"
b. "Estimation Issues Related to the Student Component of the SASS"
c. "Properties of the Schools and Staffing Survey's Bootstrap Variance Estimator"
d. "Optimal Periodicity of a Survey: Sampling Error, Data Deterioration, and Cost"

Response and Coverage Issues in School Surveys

a. "Some Data Issues in School-Based Surveys"
b. "The 1991–92 Teacher Follow-up Survey Reinterview and Extensive Reconciliation"
c. "Improving Coverage in a National Survey of Teachers"
d. "Improving the Coverage of Private Elementary-Secondary Schools"

Education Research Using the Schools and Staffing Surveys and the National Education Longitudinal Study

a. "Adding Value to the Value-Added Educational Production Function Specification"
b. "Teacher Quality in Public and Private Schools"
c. "Teacher Shortages and Teacher Quality"
d. "Work Experience, Local Labor Markets, and Dropping out of High School"

WP 95-02 QED Estimates of the 1990–91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates

NCES Working Papers Related to SASS (cont)

WP 95-03	Schools and Staffing Survey: 1990–91 SASS Cross-Questionnaire Analysis
WP 95-08	CCD Adjustment to the 1990–91 SASS: A Comparison of Estimates
WP 95-09	The Results of the 1993 Teacher List Validation Study (TLVS)
WP 95-10	The Results of the 1991–92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation
WP 95-11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work
WP 95-15	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Followup Survey
WP 95-16	Intersurvey Consistency in NCES Private School Surveys
WP 95-17	Estimates of Expenditures for Private K–12 Schools
WP 95-18	An Agenda for Research on Teachers and Schools: Revisiting NCES" Schools and Staffing Survey
WP 96-01	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study
WP 96-02	Selected papers presented at the meeting of the 1995 American Statistical Association (96-02)

Overcoming the Bureaucratic Paradigm: Memorial Session in Honor of Roger Herriot

a. "1995 Roger Herriot Award Presentation"
b. "Space/Time Variations in Survey Estimates"
c. "Out of the Box: Again and Again, Roger Herriot at the Census Bureau"

NCES Working Papers Related to SASS (cont)

Design and Estimation Issues for School Based Surveys

a. "Improving the Coverage of Private Elementary-Secondary Schools"
b. "Improving GLS Estimation in NCES Surveys"
c. "Optimal Periodicity of a Survey: Alternatives under Cost and Policy Constraint"
d. "Properties of the Schools and Staffing Survey's Bootstrap Variance Estimator"

Data Quality and Nonresponse in Education Surveys

a. "Assessing Quality of CCD Data Using a School-Based Sample Survey"
b. "Documentation of Nonresponse and Consistency of Data Categorization Across NCES Surveys"
c. "Multivariate Modeling of Unit Nonresponse for 1990–91 Schools and Staffing Surveys"
d. "Evaluation of Imputation Methods for State Education Finance Data"
e. "Variance Estimates Comparison by Statistical Software"
f. "Teacher Supply and Demand in the U.S."

NCES Working Papers Related to SASS *(continued)*

WP 96-05	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey
WP 96-06	The Schools and Staffing Survey (SASS) for 1998–99; Design Recommendations to Inform Broad Education Policy
WP 96-07	Should SASS Measure Instructional Processes and Teacher Effectiveness?
WP 96-09	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998–99 SASS
WP 96-10	1998–99 Schools and Staffing Survey: Issues Related to Survey Depth
WP 96-11	Towards an Organizational Data Base on America's Schools: A Proposal for the Future of SASS, with Comments on School Reform, Governments, and Finance
WP 96-12	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey

NCES Working Papers Related to SASS (cont)

WP 96-15	Nested Structures: District Level Data in the SASS
WP 96-16	Strategies for Collecting Finance Data from Private Schools
WP 96-23	Linking Student Data to SASS: Why, When, How
WP 96-24	National Assessments of Teacher Quality
WP 96-25	Measures of Inservice Professional Development: Suggested Items for the 1998–99 SASS
WP 96-26	Improving the coverage of Private Elementary-Secondary Schools
WP 96-27	Intersurvey Consistency in NCES Private School Surveys for 1993–94
WP 96-28	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection
WP 97-01	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association

Developing Questionnaires for Education Surveys

a. "Teacher Quality and Educational Inequality"
b. "Using Qualitative Methods to Validate Quantitative Survey Instruments"
c. "Revising the NCES Private School Survey: A Method to Design a Systematic Classification of Private Schools in the United States"

Data Quality in Education Surveys

a. "An Analysis of Response Rates of SASS 1993–94"
b. "An Overview of NCES Surveys Reinterview Programs"
c. "Estimating Response Bias in an Adult Education Survey"

NCES Working Papers Related to SASS

Design and Estimation in School-Based Surveys

a. "Optimal Periodicity of a Survey: Extensions of Probable-Error Models"
b. "Estimating the Variance in the Presence of Imputation Using a Residual"
c. "Where Will It All End? Some Alternative SASS Estimation Research Opportunities"
d. "Estimating State Totals from the Private School Universe Survey"

Policy Analysis with Education and Defense Manpower Survey Data

a. "Effect of High School Programs on Out-Migration of Rural Graduates"

WP 97-07 The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis.

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